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Predicting substance use patterns among rural adults: The roles of mothers, fathers, and parenthood

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Abstract

This study examined the role of parenthood and parental influences on substance use patterns for 710 stimulant users age 18 to 61 living in the rural Midwest and Mid-south U.S. Longitudinal growth analyses showed that a maternal history of drug use was associated with increased baseline drug use severity, lesser declines in severity, and greater plateau of drug use severity over time. Parental conflict was associated with lesser declines in drug use severity, and drug use severity declined more steeply for participants who were themselves parents. Participants with two parents having a history of alcohol use had a greater baseline severity of alcohol use, with paternal history of drug use associated with lower baseline alcohol use severity. These findings demonstrate the importance of identifying parental influences in evaluating adult substance use, and point to the inclusion of parents in efforts to prevent and treat substance use disorders.

Keywords

Parenting; parenthood; family context; substance use; rural health

Family context as a determinant of substance use in adolescence and emerging adulthood is well established (Ryan, Jorm, & Lubman, 2010; Stone, Becker, Huber, & Catalano, 2012). Yet, research examining intergenerational family influences on adult drug and alcohol use patterns is limited. Family systems theory (Bowen, 1974) posits that the individual is best

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Disclosures

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understood within his or her family system, and suggests that parental factors may influence substance use and related problems over time. Systems theory also sheds light on the influence of parenthood on substance use. Understanding the association between family factors and adult substance use can help substance use treatment providers to identify and reach out to individuals who may be at elevated risk for substance use problems based on their family environments. This association is especially important in rural areas, where access to care is often limited (Borders & Booth, 2007) and families may be at elevated risk for intergenerational cycles of substance use (Brody, Murry, Chen, Kogan, & Brown, 2006; Kramer, Han, Leukefeld, Booth, & Edlund, 2009).

History of parental alcohol and drug problems

According to family systems theory, one individual's difficulties impact all others within the family. This dynamic is illustrated in the strong empirical evidence that parental alcohol and drug problems are linked to greater likelihood of substance use by their children during adolescence and emerging adulthood (Bountress, Chassin, & Lemery-Chalfant, 2016; Stone et al., 2012). A history of parental alcohol dependence is associated with higher levels of disinhibition among adolescent offspring (King et al., 2009; Loukas, Zucker, Fitzgerald, & Krull, 2003), which has been found to predict substance use disorders over time (Tarter et al., 2003). In fact, a history of parental alcohol use has been associated with increased levels of disinhibition among *biological* offspring as well as increased alcohol use in *adopted* offspring (King et al., 2009). Parental drug use is also a risk factor for adolescent substance use (Castro, Brooke, Brook, & Rubenstone, 2006), with likely pathways through both genetic factors and behavioral exposure.

Research suggests that the effects of parental alcohol and drug use on children's substance use continue into adulthood. For example, parental drinking, risk taking, and use of cigarettes and marijuana predict heavy drinking in offspring to age 35 (Merline, Jager, & Schulenberg, 2008). In rural populations, a family history of substance use problems has been found among 60% of adults who used stimulants (Kramer et al., 2009). The current study examined associations between maternal and paternal history of alcohol and drug use problems and adult substance use severity over time.

History of parental mental health

Parental mental health problems also negatively influence individuals within the family system. Parental mental health problems are associated with adolescent substance use (Stone et al., 2012) and adult binge drinking (AUTHOR, 2008). Adolescent children of parents with a history of mental health problems are more likely to experience an unpredictable and unstable home life, fear, loneliness, loss, and sorrow, which can increase risk for later substance use problems (Trondsen, 2012). Maladaptive parental behaviors, including inconsistent enforcement of rules, loud interparental conflict, and verbal abuse, are the most prominent psychosocial mediators explaining the association between parental mental health problems and mental health problems in their offspring (Iacono, Beaulieu, Hodgins, & Ellenbogen, 2017; Johnson, Cohen, Kasen, Smailes, & Brook, 2001; Vera, Granero, & Ezpeleta, 2012). Genetics are also instrumental. Parental mental health problems have been

linked to childhood traumatic experiences, which are associated with higher rates of adult alcohol dependence and injection drug use (Wu, Schairer, Dellor, & Grella, 2010).

Little is known about the relationship between parental mental health and longitudinal patterns of substance use severity in adult offspring among rural populations. Individuals in rural settings may be particularly at risk for negative influences of family drug users. Prior research has shown that those living in rural areas rely more on family and less on friends than their urban counterparts (Amato, 1993). While most parents and other family members in rural areas discourage drug use among youth, some parents may occasionally actively offer them these substances (Pettigrew, Miller-Day, Krieger, & Hecht, 2012).

Parent-offspring conflict

Although common, conflict within family systems can introduce stress and reinforce problematic behaviors among family members, and problems in the parent-child relationship are a risk factor for adolescent substance use (Branstetter, Furman, & Cottrell, 2009; Ledoux, Miller, Choquet, & Plant, 2002). Conversely, positive and supportive families are associated with improved mental health outcomes across the lifespan (Repetti, Taylor, & Seeman, 2002; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004). Research suggests that negative aspects of parent-adult child relationships, such as conflict, are more closely linked to offspring's outcomes than more positive aspects (Umberson, Crosnoe, & Reczek, 2010), and parent-child conflict has been associated with substance use disorders in adulthood (Brook, Brook, Zhang, & Cohen, 2009). Consistent with family systems theory, parent-child conflict functions as a displacement for other types of conflict within families with substance use problems (Borton, Ferigolo, & Barros, 2017; Kaufman & Kaufman, 1979). This dynamic is supported by research findings showing family conflict to predict adult substance use (Mallett, Rosenthal, & Keys, 2005).

Research suggests that associations between parent-offspring conflict and adult substance use may vary by parent gender. For example, mother-adolescent relationships are more closely linked with adolescent substance use than are father-adolescent relationships (McArdle et al., 2002). To our knowledge, no studies have examined associations between parent-offspring conflict and longitudinal patterns of adult substance use, including differences based on parent gender.

Parenthood

Becoming a parent can lead to adjustments in roles and dynamics within a family system, which may influence adult substance use over time. Prior research supports major transitions, such as becoming a parent, as critical in predicting adult substance use (Hser, Longshore, & Anglin, 2007). Having children may deter an individual from using substances (Schulte & Hser, 2014; White, 2006); empirical findings show that becoming a parent reduces the risk of having a substance use disorder by 50%. This may be explained by reduced opportunities for substance use, limits in disposable income, and changes in world view and priorities (Fergusson, Boden, & John Horwood, 2012). However, some research has found an increase in alcohol and drug use postpartum (Chapman & Wu, 2013), which

may result from the decreased self-esteem (Bleidorn et al., 2016) and increased stress (Deater-Deckard, 2004) and psychological distress (Umberson, Thomeer, & Williams, 2013) associated with parenthood. Whether parenthood is a risk factor or a protective one among rural adults in the trajectory of substance use over time remains unclear.

Present Study

Our study used longitudinal growth modeling to analyze associations among parental factors, parenthood, and patterns of alcohol and drug use severity in a sample of rural adult stimulant users followed for three years. It is well known that substance use problems can be chronic and often change course, such as fluctuating among increasing, decreasing, and/or remaining stable. Understanding how parental factors and parenthood relate to trajectories of adult substance use can help guide case conceptualizations and approaches to substance use disorder treatment.

Hypotheses

We hypothesized that maternal and paternal drug use, alcohol use, and mental health problems; parent-offspring conflict; and childlessness would all be associated with higher and more stable drug and alcohol use over time. Conversely, we predicted that being a parent, the absence of parent-offspring conflict, and lack of parental history of drug use, alcohol use, and mental health problems would be related to declines in drug and alcohol use over time.

Methods

Sample

The current sample included 710 adults residing in rural counties of Arkansas, Ohio, and Kentucky (AUTHOR, 2006). Eligibility criteria were: (1) use of methamphetamine or cocaine within the past 30 days, (2) no formal or informal (e.g., mutual-help group) drug treatment within the past 30 days, (3) at least 18 years of age, and (4) a verifiable address in one of the study's identified rural counties. At baseline, participants had a mean age of 32.6 years (range: 18 to 61; $SD = 10.35$); most were male (61.4%, $n = 436$), either white (67.9%, $n = 482$) or Black (29.3%, $n = 208$), and had at minimum a high school education (58.7%, $n = 416$). Fully 88.2% of our sample met criteria for a substance use disorder within the past 12 months at baseline. About half had never married (48.5%, $n = 344$). Fully 66% of our sample were parents, of which 43% reported living with children under the age of 18.

Procedure

Study procedures were approved by the Institutional Review Boards at the investigators' respective universities. A Certificate of Confidentiality was obtained from the National Institute on Drug Abuse. Participants were recruited using Respondent-Driven Sampling, a type of snowball sampling (Heckathorn, 1997; Wang et al., 2005). Study staff identified potential sampling "seeds" by meeting with drug treatment providers in the local area, distributing research study business cards to individuals who might know drug users, and visiting places frequented by drug users, such as bars (Draus, Siegal, Carlson, Falck, &

Wang, 2005). Following a baseline interview, study seeds were asked to hand out referral coupons describing the study to up to three people they knew who used drugs. Each seed received \$10 for each of up to three referred individuals who contacted the study coordinator and were found eligible for, and subsequently enrolled in, the study.

Participants provided informed consent prior to data collection. Trained research assistants conducted the face-to-face baseline and follow-up interviews using computer-assisted personal interview software on a laptop computer. Follow-up interviews were conducted at six-month intervals for a total of 36 months. Follow-up rates were 85% (6-month), 83% (12-month), 80% (18-month), 77% (24-month), 76% (30-month), and 68% (36-month).

Measures

All measures were administered in English and were based on participant self-reports. All predictor (parenting) measures were created for this study. These measures were constructed to capture these factors within the study battery time constraints.

Predictors

Maternal and paternal mental health, alcohol, and drug problems: We measured six variables (three each for mother and father) using a binary (0=no, 1=yes) response to the question, “To the best of your knowledge, has your natural [mother/father] ever had any of the following health problems?” with the list including “nervous/mental disorder,” “alcohol problems or alcoholism,” and “drug problems or drug addiction.” Previous studies of parental alcoholism and parent intoxication have found offspring to provide both reliable and valid reports of these conditions (Chassin, Rogosch, & Barrera, 1991; Crews & Sher, 1992).

Parent-offspring conflict: Participants provided binary responses (0=no, 1=yes) to the following item: “In the past 30 days, have you had significant periods in which you have experienced serious problems getting along with your [mother/father]?” This item was drawn from the Addiction Severity Index (ASI; McLellan et al., 1985, 1992; McLellan, Luborsky, Woody, & O’Brien, 1980). A binary measure of parent-child conflict (or “discord”) has previously been shown to predict offspring outcomes (Nomura, Wickramaratne, Warner, Mufson, & Weissman, 2002), and offspring report of family dynamics has been found to be less influenced by social desirability bias than parent report (Stevens, Bourdeaudhuij, & Oost, 2002).

Parenthood: Participants were asked to respond (0=no, 1=yes) to the question, “Do you have children?”

Outcomes

Drug and alcohol use severity: The ASI (McLellan et al., 1985, 1992; McLellan, Luborsky, Woody, & O’Brien, 1980) was used to measure participant alcohol and drug use. The ASI is a structured, 40-minute clinical research interview assessing drug and alcohol use severity as separate domains, with interview items capturing the number, extent, and duration of symptoms within each. These items are standardized and summed to generate separate composite scores for drug and alcohol use ranging from 0 to 1 (observed minimum 0,

maximum 1), with higher scores indicating more severe problems. ASI composites have been shown to exhibit strong internal validity (McKay, Alterman, McLellan, & Snider, 1994) and participant self-report has been shown to be a valid method for measuring substance use (Secades-Villa & Fernández-Hermida, 2003).

Covariates—Based on the ASI alcohol composite score described above, baseline alcohol use was included as a covariate in the drug use severity model and vice versa. Baseline psychological severity was measured by the ASI and controlled for in both models.

Data Analyses

Analyses were conducted in Mplus version 6.11. Mplus uses full information maximum likelihood (FIML) to account for missing data, which retained the full sample ($N = 710$). To capture adult substance use trajectories over a three-year span, we conducted longitudinal growth analyses separately for alcohol and drug use severity. We then examined predictor associations with features of these trajectories, that is, initial severity level (i.e., intercept), initial rate of change in severity (i.e., slope), and shifts in the rate of change in severity over time (i.e., quadratic).

Preliminary longitudinal growth analyses—We conducted preliminary analyses to model longitudinal growth separately for severity of drug use and alcohol use (Figures 1 and 2). We first estimated a quadratic factor with freely estimated variance and all lower-order terms. Fit indices for a quadratic model were within the limits of what is necessary for this model to adequately fit the longitudinal data for both outcomes of drug use severity (RMSEA = 0.05; CFI = 0.98; TLI = 0.98; SRMR = 0.04) and alcohol use severity (RMSEA = 0.04; CFI = 0.98; TLI = 0.98; SRMR = 0.05). For RMSEA and SRMR, lower values indicate better fit, and for CFI and TLI, higher values indicate better fit. Based on prior research, maternal and paternal mental health, alcohol, and drug problems; parent-offspring conflict; and parenthood were included as predictors of the intercept (drug or alcohol use severity at baseline), slope (change in level of drug or alcohol use severity at baseline), and quadratic growth (curvilinearity; acceleration/deceleration in change over time) of drug or alcohol use severity across the six time points. Of note, given that there was a higher-order effect (quadratic) and that the data were centered at baseline, the slope was conditioned upon (i.e., centered at) that time point. In other words, because the significant quadratic effect indicates that the slope changes over time, rate of change in level (slope) was measured at one discrete time point (baseline).

Demographic covariate analyses—We considered five participant demographic characteristics as potential covariates: gender, race, marital status, age, and education level. In preliminary growth analyses of drug use severity, only three of these (race, age, education) significantly predicted longitudinal growth (i.e., intercept, slope, and/or quadratic); none of these were statistically significant ($p < .05$) in predicting growth once parental predictors were included. Four demographic variables (gender, race, age, education) significantly predicted longitudinal growth in alcohol use; all four remained statistically significant ($p < .05$) with the parental predictors included in the model. Thus, we included

the four demographic covariates in the final alcohol use severity model and none of the covariates in the final drug model.

Results

Descriptive statistics are presented in Table 1. We first predicted initial levels (intercept), rate of change (slope), and changes in the course of trajectories (quadratic effect). We then added the following predictors of the participant's alcohol and drug use severity based on our conceptual model: maternal and paternal mental health, alcohol, and drug use problems; conflict with mothers and fathers; and parenthood status. At baseline, the average ASI drug composite score was 0.22 (SD = 0.15). The average drug use trajectory showed a sharp initial decline in ASI drug severity score, followed by a slowing decline to a nadir at 30 months (ASI drug score = 0.10, SD = 0.12), and a slight upward trend by the end of the three-year period (Figure 1). Mean estimates of the intercept ($\beta = 1.80$, $p < .01$), slope ($\beta = -0.86$, $p < .01$), and quadratic factor ($\beta = 0.66$, $p < .01$) were all significant in the drug use severity model.

For alcohol use severity, mean estimates of the intercept ($\beta = 1.16$, $p < .01$), slope ($\beta = -0.41$, $p < .01$), and quadratic factor ($\beta = 0.33$, $p < .01$) also were significant. Alcohol use, compared to drug use, severity showed a less steep initial decline and a less stable course over time (see Figure 2).

Drug Use Severity

The final drug use severity model with predictors fit the data well (RMSEA = 0.03, CFI = 0.97, TLI = 0.95, SRMR = 0.03). Table 2 presents standardized regression coefficients and p -values for all model results. Maternal mental health and drug problems, and paternal alcohol and drug problems, were related to greater drug use severity at baseline. Significantly steeper initial declines in drug use severity were found among those without maternal history of drug problems and those who did not have mother-offspring conflict, as well as those who were parents. Regarding the quadratic effect, maternal drug problems and participant conflict with fathers were both significantly related to greater curvature, showing more plateauing of drug use severity over time.

Covariate effects—Alcohol use severity at baseline was significantly related to greater baseline drug use severity, less of an early decline in drug use severity (around baseline), and greater curvilinearity. Baseline psychological symptom severity was also significantly related to greater baseline drug use severity.

Alcohol Use Severity

The final alcohol use severity model with predictors fit the data well (RMSEA = 0.03, CFI = 0.98, TLI = 0.97, SRMR = 0.02). Parental predictors showed fewer significant associations with trajectories of adult alcohol use severity than with drug use severity. Maternal and paternal alcohol problems, and paternal drug problems, were related to greater alcohol use severity at baseline. The initial rate of decline (slope at baseline) and curvilinearity were not significantly predicted by any parental factors or by parenthood (Table 2).

Covariate effects—Drug use severity at baseline was significantly related to greater baseline alcohol use severity, less of an early decline in alcohol use severity, and greater curvilinearity. Baseline psychological symptom severity was not significantly related to alcohol use severity trajectories, above and beyond the other predictors and covariates. Demographic variables showed significant covariate effects, with greater baseline alcohol use severity related to being male ($\beta = 0.07, p < .01$), non-White ($\beta = 0.04, p = .02$), older ($\beta = 0.09, p < .01$), and less educated ($\beta = 0.14, p < .01$). Steeper declining slopes at baseline were found among those who were female ($\beta = 0.02, p < .01$), younger ($\beta = 0.04, p < .01$), and had higher levels of education ($\beta = 0.07, p < .01$). Greater curvilinearity in trajectories was found among those who were male ($\beta < 0.01, p = .01$), older ($\beta = 0.01, p = .01$), and less educated ($\beta = 0.01, p < .01$).

Discussion

This study of rural stimulant users examined associations of maternal and paternal factors, and the role of parenthood, with patterns of substance use over time. Although we did not find family factors to significantly predict the course of alcohol use severity over time, several family factors did predict trajectories for drug use severity.

Maternal mental health and drug use history, paternal alcohol and drug use history, and active relationship conflict with both mothers and fathers predicted the severity of adult drug use over a three-year period. Overall, drug and alcohol use declined over time, which is normative and expected, despite the fact that most in the sample received no substance use or mental health services (Curran, Ounpraseuth, Allee, Small, & Booth, 2011). Observed in other studies, these declines have been attributed to both assessment effects and remission over the lifespan (Calabria et al., 2010; Lopez-Quintero et al., 2011). Initial decreases in drug use were greater at the beginning of the three-year period when participants' mothers did not have a drug use history, when there was no active conflict with the mother, and when the participant was a parent. Maternal drug use problems and conflict with fathers were related to a less stable course of drug use over time.

Maternal drug use was the only parental factor related to all three aspects of drug use trajectories: baseline severity, change in baseline severity, and rate of change. Several mechanisms may explain these effects. Risk for prenatal exposure to substances is likely higher when the mother has a history of substance use, and such exposure has been linked to increased drug use in adolescent offspring (Day, Leech, & Goldschmidt, 2011). Genetics is another significant link between maternal and adult offspring substance use; twin studies have shown substance use disorders to be moderately heritable (Agrawal & Lynskey, 2009). Although maternal modeling of substance use may be another plausible pathway to adult child drug and alcohol use, this explanation has not been supported in adolescent research (Blanton, Gibbons, Gerrard, Conger, & Smith, 1997). "Parentification," described as the process of prematurely forcing children to assume adult or parental responsibilities, is common among offspring of substance users and has been found to predict initiation of drug and alcohol use (Bekir, McLellan, Childress, & Gariti, 1993) and overall poorer psychosocial adjustment (McMahon & Luthar, 2007). This process may also explain the link between maternal drug use and use in adult offspring. Further research is needed to identify

the precise mechanisms explaining our observed connection between maternal drug use and adult substance use patterns, including the effects of maternal drug use during childhood versus adulthood.

The observed association between parent-offspring conflict and adult drug use is also notable. Conflict with both mothers and fathers was related to greater initial drug use severity, and conflict with mothers predicted initial alcohol use severity levels. These findings build upon prior empirical support for the importance of family context—specifically conflict, on adult substance use (Asgeirsdottir, Sigfusdottir, Gudjonsson, & Sigurdsson, 2011). Further, our finding that the absence of conflict with mothers was related to steeper initial declines in drug use, and that conflict with fathers was related to more stable drug use declines, suggests that these parental factors may have long-term effects on adult drug use. Interestingly, research indicates that, among substance use disorder patients with pre-treatment family conflict, those with the lowest post-treatment conflict also demonstrated the greatest decreases in substance use over time (Fish, Maier, & Priest, 2015). This finding suggests that mitigation of family conflict may be a promising target for substance use treatment.

Being a parent was unrelated to the level of drug use severity at baseline but was related to significant declines in drug use over time, suggesting that having a child may be a protective factor in reducing drug use severity. This finding builds upon prior studies showing parenting a child as a motivating factor for entering and engaging in substance use treatment (Copello, Velleman, & Templeton, 2005). Similarly, female injection drug users who resided with their children were more likely to enter methadone maintenance treatment than were those without children in the home (Lundgren, Schilling, Fitzgerald, Davis, & Amodeo, 2003). Having a child also positively predicts amphetamine users' successful completion of drug court programs (Wu, Altshuler, Short, & Roll, 2012). Possible mechanisms explaining this effect include increased motivation to reduce substance use and/or engage in substance use treatment, and higher levels of social and emotional support among individuals who are parents. It is important to acknowledge that, while a parent's drug use patterns may be improved, childhood exposure to parental substance use puts children at risk for poor developmental outcomes. For this reason, individuals who are identified as having substance use disorders should be screened for having children in the home. Such information can help to ensure the safety of children who may be at risk and to identify protective factors that can help motivate the parent to enter and remain in substance use treatment.

Clinical Implications

Our results have several clinical implications. Prior research has proven that family interventions can effectively engage unmotivated adults in alcohol treatment (see Dutcher et al., 2009). Research also has shown greater engagement with parental as compared to spousal participation in interventions (Smith & Meyers, 2007). When treatment is warranted, our findings support including parents in their adult offspring's treatment in order to address any parent-child conflict that may be associated with the drug use trajectory. Further, understanding their potential to influence their adult child's substance use may motivate parents to participate in family interventions promoting the substance user's engagement in

treatment. Clinicians also may benefit from better understanding the role of parents in their adult children's lives, particularly when evaluating risk factors for ongoing drug use.

Our findings highlight the reciprocal nature of interactions between parents and their adult children. Studies have found that concerned significant others benefit from family interventions, whether or not the patient actually engages in treatment (Smith & Meyers, 2007). These interventions may not only increase the likelihood that a substance using adult will enter treatment, but also may indirectly enhance substance use outcomes through improvements in parental mental health and alcohol and drug use, and in parent-adult child relationships.

Despite logistical barriers to the adoption of family interventions by substance use disorder treatment programs (Copello & Orford, 2002; Fernandez, Begley, & Alan, 2006; Templeton, Zohhadi, & Velleman, 2007), our study contributes to mounting support for family context as a promising target for substance use disorder treatment. The protective effect of parenthood shown in the current study also has important implications, suggesting that being a parent may be a motivating factor for decreasing drug use over time. In addition, increasing awareness among parents about ways in which their own mental health and substance use may affect their offspring can help them to protect their children from developing substance use disorders, motivate them to change, encourage their engagement in treatment, or help them to maintain improvements over time.

Our results show that family context may be used in screening tools to identify individuals at greatest risk for ongoing substance use over time. Providers might consider including maternal and paternal history, ongoing parent-offspring conflict, and parenthood in their evaluations as indicators of risk and resilience, and to help guide models of substance use disorder treatment. Current screening practices limit their effectiveness by focusing on the individual's current and immediate context, including spouse or intimate partner and peers but not families of origin. Although our findings demonstrate that parents continue to influence substance use in their offspring into adulthood, this may be overlooked in current practice.

Regarding alcohol use severity over time, our findings suggest that older, less educated males in rural areas are particularly at risk. Although family factors did not predict trajectories of alcohol use severity, these demographic characteristics may be used to inform early detection and intervention for those at greatest risk for ongoing use. Although our sample was selected based on stimulant use, the same family factors would likely play a more significant role in the trajectories of alcohol use severity.

Limitations

Our sample consisted of adult stimulant users residing in rural areas of the U.S. and predominantly identified as white and African American. As such, these results may not generalize to other racial and ethnic groups or to individuals in urban areas. However, this also points to an additional strength: these data were collected from individuals who are under-represented in health research. Additionally, the timing of parental factors (i.e., parental mental health problems during the participant's childhood or adulthood) was not

measured. This information would be valuable in showing whether parental factors primarily operate through current dynamics, childhood experiences, or both. In addition, an individual's own drug use may have influenced his or her parent's poorer mental health, substance use, and conflict, rather than the parent influencing the offspring. Similarly, most measures of family factors were binary, failing to capture the complexity and dimensionality of these family constructs. Lastly, individual retrospective reports of parental factors may be biased, although research on adult retrospective reports of early adverse experiences indicates that such data are relatively unbiased and that false positives are rare, with false negatives being more likely (Hardt & Rutter, 2004). Thus, using these measures may have made our study particularly conservative in detecting significant effects.

Summary and Conclusion

In this sample of rural adults using stimulants, parental factors continued to be associated with drug use severity and patterns in severity over a three-year period. In particular, a maternal history of drug problems predicted greater levels of adult drug use severity and lesser declines in severity, as well as more changes in severity across time. While conflict with both mothers and fathers predicted increased levels of initial drug use severity, active conflict with mothers predicted weaker declines in drug use severity, and conflict with fathers predicted greater plateauing of drug use severity over time, above and beyond maternal and paternal mental health, alcohol, and drug problems. Being a parent was related to steeper initial declines in drug use. Alcohol use severity over time was not significantly related to any family factors, although worse trajectories were found among older, less educated adult males.

Overall, these findings suggest that parent functioning and parent-offspring interactions continue to influence substance use into adulthood, supporting the use of family interventions in addiction treatment, as well as the ongoing education of patients, their family members, and clinicians about the importance of family context in patterns of drug and alcohol use.

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Figure 1.
Plot of estimated and observed drug use severity across 6 time points.

Figure 2.
Plot of estimated and observed alcohol use severity across 6 time points.

Table 1

Descriptive statistics of study variables.

Variable	Mean	SD	Skewness	Kurtosis
Drug use (baseline)	0.22	0.15	0.81	0.45
Drug use (6-mo)	0.15	0.14	0.97	0.53
Drug use (12-mo)	0.13	0.12	0.99	0.75
Drug use (18-mo)	0.12	0.12	1.16	1.24
Drug use (24-mo)	0.11	0.12	1.19	1.17
Drug use (30-mo)	0.10	0.12	1.47	2.29
Drug use (36-mo)	0.11	0.12	1.42	2.11
Alcohol use (baseline)	0.18	0.18	1.28	1.43
Alcohol use (6-mo)	0.14	0.17	1.71	3.58
Alcohol use (12-mo)	0.13	0.15	1.41	2.12
Alcohol use (18-mo)	0.12	0.14	1.45	1.96
Alcohol use (24-mo)	0.12	0.15	1.37	1.39
Alcohol use (30-mo)	0.11	0.15	1.48	1.95
Alcohol use (36-mo)	0.12	0.14	1.61	3.31
Father mental health	0.08	0.27	—	—
Mother mental health	0.24	0.43	—	—
Father alcohol problems	0.54	0.50	—	—
Mother alcohol problems	0.21	0.41	—	—
Father drug problems	0.25	0.43	—	—
Mother drug problems	0.20	0.43	—	—
Conflict with father	0.17	0.40	—	—
Conflict with mother	0.29	0.75	—	—
Parenthood	0.66	0.47	—	—
Psychological symptom severity	0.20	0.22	0.77	−0.38

Note. Descriptive statistics are based on estimates using Full Information Maximum Likelihood, which employs the full study sample ($N = 710$).

Table 2

Results from models predicting drug and alcohol use severity.

	Drug use severity model			Alcohol use severity model		
	Intercept	Slope	Quadratic	Intercept	Slope	Quadratic
Father mental health	0.01 (.81)	-0.03 (.64)	0.05 (.45)	-0.08 (.12)	0.05 (.46)	-0.04 (.60)
Mother mental health	0.11* (.02)	-0.06 (.30)	0.09 (.19)	-0.08 [†] (.09)	0.01 (.82)	0.03 (.67)
Father alcohol problems	0.09* (<.05)	<0.01 (.99)	-0.04 (.53)	0.16* (<.01)	-0.03 (.63)	0.01 (.94)
Mother alcohol problems	-0.05 (.27)	0.05 (.38)	-0.03 (.66)	0.11* (.02)	-0.07 (.25)	0.07 (.34)
Father drug problems	0.15* (<.01)	-0.12 [†] (.06)	0.14 [†] (.06)	-0.12* (.01)	0.10 (.17)	-0.04 (.60)
Mother drug problems	0.11* (.02)	-0.17* (<.01)	0.15* (.03)	-0.03 (.60)	-0.09 (.19)	0.07 (.36)
Conflict with father	0.14* (.03)	0.15 [†] (.09)	0.19* (<.05)	0.05 (.48)	0.03 (.76)	-0.05 (.67)
Conflict with mother	0.23* (<.01)	-0.26* (<.01)	0.17 [†] (.05)	0.02 (.76)	0.09 (.31)	-0.07 (.46)
Parenthood	-0.06 (.17)	0.13* (.03)	-0.12 [†] (.06)	0.01 (.84)	-0.03 (.64)	<0.01 (.99)
Baseline alcohol use severity	0.26* (<.01)	-0.28* (<.01)	0.24* (<.01)	—	—	—
Baseline drug use Severity	—	—	—	0.27* (<.01)	-0.32* (<.01)	0.28* (<.01)
Baseline psychological symptom severity	0.20* (<.01)	-0.12 [†] (.05)	0.11 (.11)	-0.02 (.74)	-0.04 (.49)	0.06 (.39)

Note.

* $p < .05$.[†] $p < .10$. Standardized regression coefficients (p -values) reported. Demographic covariates used in alcohol use severity model not reported in table (see Results section for covariate estimates and p -values).