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Illicit Drug Use among Women with Children in the United States: 2002–2003

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Abstract

Objective—Given research that shows youth exposed to maternal addiction have increased rates of cognitive, socio-emotional, and behavioral problems, we examined the prevalence and correlates of past year illicit drug abuse or dependence among women with children less than 18 years in the home to identify maternal risk factors.

Methods—Data were from the 2002 and 2003 National Survey on Drug Use and Health, a nationally representative sample of the U.S. civilian population. The current analysis utilized a subsample of women (N=19,300) who reported having children less than 18 years in the home. Past year abuse or dependence of cocaine, heroin, marijuana, stimulants, and hallucinogens, and non-medical use of prescription medications were assessed.

Results—The prevalence of illicit drug abuse or dependence was 1.9%. Mothers reporting drug abuse or dependence had increased odds of being unmarried, controlling for other demographics. They also were more likely to report stress, poorer health status, and meet the criteria for serious mental illness (SMI).

Conclusions—Prevention and intervention strategies should focus on developing and testing methods to screen for both risk factors associated with maternal drug abuse and actual substance abuse in primary and emergency care settings to reduce youth exposure and improve child developmental outcomes.

Keywords

substance-related disorders; maternal health services; child health services

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Introduction

Exposure to parental substance use, abuse and dependence is associated with a number of adverse outcomes for children. These include poor emotional regulation and social interaction as toddlers (1), as well as the development of attention deficit-hyperactivity disorder, oppositional defiant disorder, and conduct disorder (2). Other emotional and behavioral problems that have been associated with maternal substance use include anxiety, emotional dependency, peer conflict, and social withdrawal (3). Further, parental drug use is associated with more exposure to violence within and outside the home, which has been shown to contribute to adverse psychological outcomes in adolescence, including higher rates of depression and post-traumatic stress disorder (4;5). Finally, children of substance users are more likely to use substances themselves (6;7).

Several factors are associated with substance use, abuse, and dependence, especially among women. Longitudinal research has shown general self-rated health status declines with use of illicit drugs, including cocaine, opiates, and amphetamines, even after controlling for other psychosocial and biological covariates (8). In addition, stress is a strong predictor of substance use, which has been associated with both activation (9) and abnormal functioning (10) of the hypothalamic-pituitary-adrenal axis. Further, the stress caused by chronic involvement in a drug-using lifestyle contributes to continued drug use and dependence (11). Psychiatric comorbidity is also common in individuals with substance use disorders (12), and individuals with mental and substance use comorbidities are less likely to receive mental health treatment (13). Interpersonal violence (IPV) and substance use are highly correlated. Research demonstrates women who use drugs or drink alcohol are more likely to be battered and injured (14). Likewise, women who experience IPV are more likely to be frequent substance users and have a greater number of substance disorder symptoms than women who do not experience IPV (15). Finally, previous research has demonstrated a link between receipt of welfare benefits and increased risk of illicit drug use (16;17). Literature suggests Medicaid policies make it difficult for clients to obtain substance abuse treatment services (18), and data reveal privately insured patients have double the odds of entering chemical dependency treatment than Medicaid-insured patients (19).

Given that women are more often primary caretakers of children, and given the negative effects of maternal substance use on child and adolescent outcomes, the overall aim of this study was to use a nationally representative sample to determine the prevalence and correlates of illicit substance use among mothers with children less than 18 years of age in the home. This research is important in helping public health professionals and primary care practitioners to identify children in families who may be at risk for exposure to the deleterious effects of maternal substance use, so both children and their caregivers might receive appropriate intervention.

Subjects and Methods

We analyzed data from the 2002 and 2003 National Survey on Drug Use and Health (NSDUH) (20;21). The NSDUH is a nationally representative, epidemiologic survey that serves as the primary source of information on the prevalence of illicit drug, alcohol, and tobacco use in the United States. Annually data are collected from approximately 70,000 individuals age 12 years and older within the non-institutionalized, civilian population. The NSDUH utilizes an independent, multistage area probability sampling method for each state and the District of Columbia. Data are collected in person using a combination of computer-assisted personal interviewing (CAPI) and audio computer-assisted self-interviewing (ACASI), the latter of which provides a confidential means of participating thereby minimizing reporting bias (20; 21). The response rates exceeded 75% for 2002 and 2003 (79% and 77%, respectively). The

total sample size for the 2002–2003 NSDUH was 109,309; however, for the current analysis, respondents only included women with children under age 18 living in the home (N = 19,300).

Dependent Variable

The purpose of this study was to examine the prevalence and correlates of illicit substance use among women with children living in the home. Thus, the dependent variable of interest was past year abuse or dependence of any illicit substance, including cocaine, heroin, marijuana, and hallucinogens, as well as non-medical abuse/dependence for prescription medications. Abuse and dependence were assessed in the NSDUH using criteria from the Diagnostic and Statistical Manual of Mental Disorders, version IV (DSM-IV) (22). This dichotomous variable was created from all substance use variables and categorized respondents with illicit substance abuse or dependence (1) or no illicit substance abuse or dependence (0).

Independent Variables

We measured 7 demographic variables, including: (a) age, defined by 4 categories (18–25, 26–34, 35–49, and 50 years or older), (b) race/ethnicity (White, African American, Hispanic and Other Race/Ethnicity), (c) education, defined by 3 categories (less than 12 years, 12 years, and more than 12 years); (d) marital status, defined by 4 categories (married, widowed, divorced, and never married); (e) income in 4 categories (<\$20,000, \$20-49,999, \$50-74,999, and > \$75,000), (f) employment status, defined by 4 categories (full-time, part-time, unemployed, and other), and (g) population density, in 3 categories (metropolitan statistical area [MSA] >1 million people, MSA < 1 million people, non-MSA).

In addition to demographic variables, we examined 6 possible covariates of maternal substance abuse or dependence based on previous literature. These include: maternal physical health status, maternal stress in the past year, serious mental illness (SMI), interpersonal violence, receipt of public/governmental benefits, and health insurance status.

In the NSDUH, self-rated health status was measured by a single question asking respondents to rate their current health from excellent (1) to poor (5). A single question of self-rated health status has been shown to be a reliable indicator of overall health status in numerous studies (23–25). Maternal stress in the past year was measured by responses to questions asking participants whether they experienced reactions to any extremely stressful event, such as upsetting memories, emotional distance from others, difficulties sleeping or concentrating, and feeling jumpy or easily startled. The NSDUH measures SMI by a variable that summed the scores (0 = none of the time to 4 = all of the time) on responses to 6 variables measuring how frequently respondents experienced psychological distress during the one month in the last year when they felt their worst emotionally. Respondents were coded as having SMI (1) if they scored greater than 12 (20;21). IPV was measured according to responses on two variables: how many times the respondent reported hitting or threatening to hit her partner, and how many times the respondent reported that her partner hit or threatened to hit her. A response greater than 0 to either of these questions was coded as experiencing relationship violence (IPV = 1); a response of 0 was recorded as no relationship violence (IPV = 0). Receipt of public benefits was measured according to whether respondents received welfare/cash assistance, government-sponsored job placement services, and/or child care subsidies in the past year (1) or not (2). Finally, in the NSDUH, health insurance status was measured according to whether insurance was private (1) or not (2).

Statistical Analyses

STATA 9.0 (College Station, TX) was used to analyze these data. We computed all statistics using the *svyset* command, which accounts for the complex survey design and weighting using Taylor series linearization. First, we computed descriptive statistics for the entire sample

(women with dependent children <18 years living with them). Second, we ran separate bivariate logistic regression models for each independent variable to assess the relationships between the individual predictors and illicit substance abuse/dependence. Finally, we ran a multivariate logistic regression (MLR) model to examine the correlates of illicit substance abuse/dependence among women with dependent children. Variables that demonstrated significant bivariate association ($P \leq 0.05$ and the 95% confidence interval did not include 1) were added to the multivariate model one at a time until model parsimony was achieved. The final multivariate model served as the basis for interpretation.

Results

Descriptive Statistics

The prevalence of substance abuse or dependence in this nationally representative sample of women with dependent children was 1.9% (Table 1), while the overall prevalence among all women responding to the survey was 1.8% ($p=0.42$, results not shown). The most common drug for which the women met abuse or dependence criteria was marijuana, followed by prescription analgesics. The majority of the sample was between 26 and 49 years of age. Just over 61% of participants self-identified as White, while the remaining identified as either African American (15.1%), Hispanic (16.9%), or other race/ethnicity (6.3%). Less than one-half reported education beyond a high school degree, while 18.5% reported less than 12 years of education and 31.8% reported a high school degree or equivalent. The majority of subjects were married (61.9%), while 3.4% were widowed, 15.3% divorced, and 19.4% had never married. Nearly 20% of participants reported annual family incomes below \$20,000. Another 36.9% reported family incomes between \$20,000 and \$49,999, while the remaining 43.5% reported incomes above \$50,000. Almost 70% of participants reported working full- or part-time. Just over 3% were unemployed as defined by the Current Population Survey, meaning they were currently looking for work (13,14). The remaining 27.5% were classified as other, which included students and those not in the labor force.

Correlates of Substance Abuse/Dependence

Results from the bivariate models (Table 2) indicated five demographic variables were significantly associated with illicit substance abuse or dependence among women with dependent children: younger age, less education, lower income, being divorced or never married, and being unemployed. Additionally, private health insurance status, receipt of public family services, and maternal health status, past year stress, serious mental illness, and interpersonal violence were also found to be associated ($p < 0.05$) with illicit drug abuse and/or dependence among women with dependent children in the home.

Results from the MLR model (Table 3) revealed women who were older and had a high school degree or equivalent (Adjusted Odds Ratio [AOR] = 0.68; 95% CI: 0.47–0.98) were less likely to be abusing or dependent on illicit drugs, controlling for income, employment status, and insurance status. Younger women were also significantly more likely to be abusing or dependent on illicit substances. Compared with women age 50 and older, women in the 18 to 25 category were 7.7 times more likely to meet the DSM-IV abuse or dependence criteria, adjusting for all other variables in the model. Women who had serious mental illness were 3.70 times (95% CI: 2.76–4.96) more likely to be abusing or depending on illicit drugs than women not meeting the criteria for SMI. Similarly, women who self-reported their health as only good or fair were respectively 2.13 (95% CI: 1.32, 3.44) and 3.07 (95% CI: 1.69, 5.56) times more likely to abuse or be dependent on illicit substances than those reporting excellent health. Finally, women without significant stress in the previous 12 months may be less likely to abuse or be dependent on illicit substances (AOR = 0.99; 95% CI: 0.98–0.99), although given the

proximity of the point estimate to 1, there may be no differences in stress between users and non-users.

Discussion

Results from this study show that almost 2% of female caregivers with children under age 18 in the home use illicit substances. Several factors associated with substance abuse and dependence emerged from this study of women with dependent children. Women who were younger, divorced and never married had increased odds of abuse and dependence on illicit drugs after controlling for other demographic characteristics. These findings support other research that has shown older women are less likely to use illicit substances than younger women (26), and the social support of having a marital partner reduces the odds of using drugs and other substances as a coping strategy (27). Additionally, maternal stress, SMI, and poorer perceived health were significant correlates of illicit substance abuse and dependence. These findings corroborate other studies that have shown substance abuse disorders are comorbid with other mental health problems, including depression, anxiety, post-traumatic stress disorder, and severe stress (28;29). They also support other research demonstrating drug use among healthy young adults is associated with decreased self-rated health over time (8).

This study supports others who argue for the importance of understanding the impact of parental substance use and dependence on children's health. Substance abuse has been called the dominant characteristic of families involved in child abuse cases, and this should be explored when children present with indicators of neglect or abuse (4). Since substance abuse may be one way mothers cope with mental illness, lack of social support, or increased stress, it is advisable to ask what types of stressors exist in the home, and how they may be affecting the children (28;30).

Findings from this study suggest important psychosocial risk factors that may be identified in clinical settings and reduce the number of children living in high-risk households. There have been ongoing discussions in the literature of the unique role of pediatric clinicians in identifying maternal psychosocial problems through preventive screenings (31;32). Further, research specifically on maternal depression and stress suggests screening in pediatric practices can be helpful in identifying at-risk mothers and making appropriate referrals (33). However, Heneghan and colleagues (34) found mothers may be reluctant to discuss their emotional health and well-being with their children's clinicians due to fears of judgment from the practitioner or referrals to child protective services. Consequently, future studies are needed to determine effective tools and methods to screen for risk factors associated with maternal drug use at well-child visits. Such screenings can serve not only to identify children living in households with current maternal drug use, but also as primary prevention to identify mothers at-risk for substance use and make appropriate referrals to counseling and social services before they develop abuse and/or dependence.

In addition to screening for risk factors of maternal substance abuse at well-child visits, screening for actual substance abuse is another important public health strategy in reducing the number of children exposed to maternal substance use in the home. Interestingly, few studies have been conducted on screening for parental substance abuse in a pediatric setting, and it is not standard practice in preventive care. However, evidence suggests this practice is feasible. In one study (35) investigators tested screening instruments for alcohol and substance use and found a 6-question screen had good sensitivity in identifying alcohol and drug abuse and was easily incorporated into practice. A study of maternal alcohol use in a pediatric emergency department demonstrated screening for abuse is feasible in this busy setting (36). These authors noted maternal substance use is associated with decreased use of preventive

pediatric services and increased use of emergent pediatric services, and thus an emergency setting may be a more appropriate venue for screening maternal drug abuse.

Finally, primary care providers also may play a role in identifying women at risk for illicit substance abuse and dependence. Our findings suggest an initial screen can and should include identification of psychosocial risk factors, including young age, single marital status, high stress levels, mental illness, and general health status. Research has demonstrated the utility of a 3-question screen that is easily administered in the busy primary care practice (37). Once identified, clinical data show that substance abuse treatment can be effective in treating illicit substance abuse and dependence, especially when programs are gender-specific (38). However, it also appears that motivation for treatment among women with children is low, given the potential for custodial issues (39). The results from this study suggest that abuse/dependence on marijuana and prescription analgesics (opioids) are most prevalent among women with children in the home. Therefore, newer treatments, such as buprenorphine for opioid dependence, may be a more viable option for these women given it is not only effective, but can be prescribed by trained physicians in a primary care setting (40).

While these findings show prevalence rates and correlates between specific factors and maternal substance abuse and dependence, the direction of effect is unknown, and causal associations cannot be determined from cross-sectional data. Longitudinal studies are warranted. A second limitation is the difficulty of measuring substance abuse and dependence as a dichotomous variable, because there are a wide variety of substance disorders as measured in the DSM-IV (e.g., alcohol dependence and prescription drug abuse demonstrate different effects, and these will affect children differently). Third, the use of SMI may be an imprecise measure of psychiatric distress among these women. However, it is the only measure of mental illness in the dataset and is an important construct to consider when examining substance abuse and dependence. In addition, if the measure is indeed imprecise, this would indicate non-differential misclassification and would therefore bias the estimate towards the null. In turn, the strong association found between SMI and substance abuse/dependence among women with children would likely be an underestimation of the true odds. Finally, despite interviewer efforts, there always exists the likelihood for bias in reporting sensitive issues such as substance abuse (28).

Despite these limitations, our results suggest directions that could be pursued in developing best practices in substance abuse screening among women with children. Public health professionals and primary care practitioners can collaborate to determine appropriate brief screenings to assess maternal substance use among children exhibiting emotional or behavioral disturbances. Linking families to community resources including mental health services, alcohol and other drug treatment services, parenting training and other services may help mitigate effects of adverse environment in families affected by drug use. Longitudinal studies to investigate the complex constellation of influences on child well-being that are associated with drug abuse in the home, including demographic risk factors, parental mental health, substance use and abuse, and household violence, might provide better direction for the most effective points of intervention.

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Abbreviations and Acronyms

ACASI

audio computer-assisted self-interviewing

AOR	adjusted odds ratio
CAPI	computer-assisted personal interviewing
DSM-IV	Diagnostic and Statistics Manual of Mental Disorders, 4 th Edition
IPV	interpersonal violence
MLR	multiple logistic regression
MSA	metropolitan statistical area
NSDUH	National Survey on Drug Use and Health
SMI	serious mental illness

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Table 1
Descriptive Statistics for the Study Sample (N=19,300)

Characteristic	%
Any Illicit Substance Abuse/Dependence	1.9
Specific Drugs–Abuse/Dependence	
Marijuana	0.9
Cocaine	0.4
Heroin	0.1
Hallucinogens	0.1
Prescription Analgesics	0.6
Prescription Sedatives	0.1
Prescription Stimulants	0.2
Prescription Tranquilizers	0.2
Multiple Substances	0.2
Age	
18–25 years	15.9
26–34 years	25.9
35–49 years	46.7
50 years or older	11.5
Race/Ethnicity	
White	61.6
African American	15.1
Hispanic	16.9
Other Race/Ethnicity	6.3
Education	
< 12 years	18.5
12 years	31.8
> 12 years	50.0
Total Family Income	
< \$20,000	19.6
\$20,000	36.9
\$50,000	19.1
\$75,000	24.4
Marital Status	
Married	61.9
Widowed	3.4
Divorced	15.3
Never Been Married	19.4
Employment Status	
Full-time	49.5
Part-time	19.5
Unemployed*	3.5
Other ⁺	27.5

* Seeking employment, but jobless;

+ Includes being out of the labor force and students

Table 2
Results of Bivariate Regression Models

	Odds Ratio	95% Confidence Interval	P-value
Age			
18–25 years	13.7	4.0–47	<0.001
26–34 years	5.5	1.6–19	0.008
35–49 years	3.8	1.0–14	0.036
≥ 50 years	1.0		
Race/Ethnicity			
White	1.0		
African American	1.3	0.9–1.8	0.120
Hispanic	0.9	0.6–1.3	0.502
Other Race/Ethnicity	0.9	0.5–1.8	0.918
Education			
< 12 years	1.0		
12 years	0.6	0.4–0.8	<0.001
> 12 years	0.4	0.3–0.6	<0.001
Income			
< \$20K	1.0		
\$20–49,999K	0.6	0.5–0.8	0.002
\$50–74,999K	0.3	0.2–0.5	<0.001
≥ \$75K	0.3	0.2–0.5	<0.001
Marital Status			
Married	1.0		
Widowed	0.5	0.2–1.7	0.293
Divorced	2.8	1.8–4.2	<0.001
Never married	5.4	3.9–7.4	<0.001
Employment Status			
Full-time	1.0		
Part-time	1.0	0.7–1.4	0.911
Unemployed	3.9	2.4–6.2	<0.001
Other	1.2	0.9–1.6	0.278
Population Density			
MSA > 1million	1.0		
MSA < 1million	1.3	0.9–1.7	0.100
No MSA	1.1	0.8–1.6	0.402
Private Health Insurance			
Yes	1.0		
No	2.7	2.1–3.5	<0.001
Received Public Family Services			
Yes	1.0		
No	0.4	0.3–0.6	<0.001
Health Status			
Excellent	1.0		

	Odds Ratio	95% Confidence Interval	P-value
Very Good	2.0	1.3–3.2	0.003
Good	3.3	2.0–5.2	<0.001
Fair	5.3	3.1–9.2	<0.001
Poor	4.2	1.5–11.7	0.006
Stress Past Year			
Yes	1.0		
No	0.99	0.99–0.99	<0.001
Serious Mental Illness			
No	1.0		
Yes	6.4	4.9–8.4	<0.001
Interpersonal Violence			
No	1.0		
Yes	2.2	1.5–3.3	<0.001

Table 3
Multivariable Regression Model Examining Illicit Substance Abuse or Dependence among Women with Children

	Odds Ratio	95% Confidence Interval	P-value
Age			
18–25 years	7.7	2.0–30.1	0.003
26–34 years	5.0	1.2–20.0	0.024
35–49 years	4.3	1.1–17.0	0.038
≥ 50 years	1.0		
Education			
< 12 years	1.0		
12 years	0.7	0.5–0.9	0.040
≥ 12 years	0.7	0.5–1.1	0.124
Income			
< \$20K	1.0		
\$20-49,999K	1.0	0.8–1.4	0.791
\$50-74,999K	0.8	0.5–1.3	0.315
> \$75K	0.9	0.5–1.7	0.873
Private Insurance	1.3	0.9–1.9	0.178
Marital Status			
Married	1.0		
Widowed	1.0	0.2–3.9	0.953
Divorced	1.7	1.1–2.7	0.015
Never married	2.7	1.8–4.0	<0.001
Employment Status			
Full-time	1.0		
Part-time	0.9	0.6–1.3	0.724
Unemployed	1.5	0.9–2.6	0.146
Other	0.9	0.6–1.3	0.615
Serious Mental Illness	3.7	2.8–5.0	<0.001
Stress	0.9	0.9–0.99	<0.001
Health Status			
Excellent	1.0		
Very Good	1.6	1.0–2.5	0.057
Good	2.1	1.3–3.4	0.002
Fair	3.1	1.7–5.6	<0.001
Poor	2.5	0.9–6.8	0.082