Recognizing Illicit Drug Use by Pregnant Women: Reports from Oregon Birth Attendants

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ABSTRACT

Objectives. This study was undertaken to determine the prevalence of recognized prenatal illicit substance abuse and the characteristics of women being identified as illicit drug users in a statewide population-based cohort.

Methods. During a 1-month period, birth attendants of all singleton births in Oregon (n = 3200) were surveyed regarding their knowledge of prenatal illicit drug use by women who gave birth. Birth certificates were linked to surveys after removal of personal identifiers.

Results. Illicit drug use was recognized in 5.2% of delivering women. Nearly half had used cocaine, methamphetamine, or heroin. Recognized users were significantly more likely than nonusers to be unwed and to have used tobacco or alcohol, have received inadequate prenatal care, and have public assistance as a source of payment. Drug use was recognized twice as frequently by practitioners who routinely questioned their patients about it compared with those who relied on clinical judgment or the occurrence of complications during pregnancy. Birth certificate reporting identified only 41% of recognized users.

Conclusions. Oregon practitioners are identifying seven times as many drug-using women as can be accommodated by available treatment programs for this population. Increased efforts are needed to ensure the adequacy of resources necessary to cope with the problem as already recognized. (*Am J Public Health.* 1993;83:61–64)

Introduction

Illicit drug use during pregnancy has emerged as a major public health problem of the 1990s. It is estimated that, among American women between 15 and 44 years of age, 11% use marijuana and 4% use cocaine on a regular basis.[1] Of particular concern is that this rate may be increasing among women younger than 25 years.[2]

Illicit drug use during pregnancy has been linked to a variety of adverse pregnancy outcomes, including low birthweight, premature delivery, and placental abruption (due to cocaine[3–8]); decreased fetal growth (due to marijuana[5,9] and amphetamines[10,11]); and decreased birthweight and drug-related sudden infant death syndrome (due to opiates[12–14]).

A central problem of the prenatal illicit substance abuse epidemic has been the uncertainty regarding its magnitude. Prevalence estimates and sociodemographic correlates of prenatal illicit substance abuse usually have been based on studies conducted in large urban hospitals[3–5] and thus may not be representative of the general population. The relevance of these studies to the average practitioner has been uncertain.

Few studies have reported the extent to which prenatal illicit substance abuse is looked for and recognized in the general obstetric population. The present study was done to determine the prevalence of *recognized* prenatal illicit substance abuse and the characteristics of women being identified as illicit drug users in a statewide population-based cohort. To accomplish this, we surveyed birth attendants of all deliveries occurring among Oregon residents during a 1-month period in 1989, and we linked these surveys to birth certificate information after removing personal identifiers.

Methods

Study Population

The sample consisted of all women residing in Oregon who delivered a singleton infant during November 1989. Information on prenatal substance abuse was derived from two sources: a birth attendant survey and birth certificate data.

Birth Attendant Survey

All birth attendants (obstetricians, family practitioners, and nurse midwives) registered in the state were informed by letter of the study objectives and methodology 2 months before the study period. Survey questionnaires were distributed to all delivery units throughout the state. Birth attendants were asked to complete a questionnaire at delivery for each woman they delivered during the study month.

Questionnaire information included whether the patient self-reported illicit drug use (marijuana, cocaine, heroin, methamphetamine, or others) during the current pregnancy, and whether the mother or neonate was laboratory tested

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TABLE 1—Characteristics of Recognized Pregnant Drug Users and Nonusers, Oregon, November 1989

	Users (n = 144)		Nonusers (n = 2647)			
	n	%	n	%	OR[a]	95% CI[a]
Tobacco use[b]	107	74.3	572	21.6	5.1	3.4, 7.8
Alcohol use[c]	31	21.5	155	5.9	2.4	1.4, 3.9
Unwed	94	65.3	559	21.1	2.7	1.8, 4.2
Inadequate prenatal care[d]	31	21.5	169	6.4	1.8	1.1, 3.0
Public assistance	89	61.8	610	23.0	1.7	1.1, 2.6
Education: < high school	66	45.8	511	19.3	1.4	0.9, 2.1
Age: <25 y	81	56.3	994	37.6	1.0	0.7, 1.5
Black race[e]	12	8.3	39	1.5	1.7	0.7, 3.8
Urban residence	89	61.8	610	23.0	1.4	0.9, 2.2

[a]Adjusted odds ratios and 95% confidence intervals in regression model controlling for age, race/ethnicity, marital status, education, prenatal care, insurance type, and tobacco and alcohol use.
[b]Known for 2783 respondents.
[c]Known for 2781 respondents.
[d]Defined as either fewer than 5 total visits or care beginning after 6 months gestation.
[e]Non-Hispanic Blacks compared with Whites (n = 2455) and Hispanics (n = 163).

for illicit drugs during the pregnancy or postpartum period. If illicit drug use was reported, the birth attendant was asked to provide information about which drugs were used and whether the client was referred for any counseling or treatment services. All attendants were asked to characterize their usual policy regarding asking about or testing their patients for substance abuse.

To ensure confidentiality, questionnaires were identified only by the birth attendant's last name, the baby's and mother's date of birth, and the location of the delivery unit. Using these identifiers, questionnaires were linked to birth certificates with names removed. Two months after the end of the study period, copies of remaining unlinked birth certificates were mailed to the birth attendant with a second follow-up questionnaire linked to the certificate by a coded number.

Birth Certificate Reporting

Information abstracted from birth certificates included county of birth, birth attendant, maternal characteristics (age, race, ethnicity, education, marital status, and tobacco and alcohol use during this pregnancy), pregnancy history, gestational age, birthweight, adequacy of prenatal care, primary financial coverage, and complications of labor and delivery.

Since 1989, birth attendants in Oregon have been requested to report prenatal illicit substance abuse on the birth certificate voluntarily in a section asking about current tobacco and alcohol use. Space is provided to write in information on drug use, but no specific question is asked. Women reported through either survey or birth certificate reporting were defined as users in this analysis.

Statistical Analysis

For univariate analyses, contingency table data were analyzed with the Mantel-Haenszel χ^2 or Fisher Exact Test. We used *t*-tests to compare two means for continuous data. Confidence intervals (CIs) for odds ratios (ORs) were calculated using EPIINFO computer software. Multivariate analyses were performed with least squares multiple linear regression for continuous dependent variables and with logistic regression for dichotomous dependent variables using SAS/PC software. A two-tailed *P* value of less than .05 was considered to indicate statistical significance.

Results

A total of 3200 live singleton births were reported during the study period. Substance abuse questionnaires were received and linked to birth certificate information for 2791 (87%) of those births. Sixty-four percent of questionnaires were completed by attendants at delivery; 36% were mailed in 2 months after the study period ended. Maternal characteristics (age, education, marital status, race, ethnicity, alcohol and tobacco use), type of insurance, and extent of prenatal care did not differ significantly either between surveys returned at delivery compared with those obtained by follow-up, or between linked and unlinked certificates. None of 409 unlinked certificates reported drug use, and unlinked certificates were not included in subsequent analyses. Of the 181 surveys that could not be linked to birth certificates because of incomplete information, 2 (1%) reported illicit drug use.

Prevalence of Recognized Drug Use

Among the sample population of 2791 mothers, illicit drug use was recognized in 144 (5.2%). The prevalence of recognized drug use was 5% or greater in counties containing the urban centers of Portland, Salem, and Eugene; however, rates greater than 5% were also noted in some less populated rural counties. One hundred twenty-five (87%) users were identified by the birth attendant survey. In contrast, birth certificates identified 59 users, 40 of whom were also identified through survey data. As reported by birth attendants on the survey, laboratory testing alone (no self-report) accounted for identification of 13 (10%) of the 125 mothers recognized through the survey, and urine testing was reported to be done in 50 (40%) of them.

Types of Drugs Used

Specific information on drugs used was available for 120 (83%) of the recognized users. Among these women, 41% reported using marijuana alone; 59% were identified as having used cocaine, methamphetamine, or heroin. Cocaine was used alone by 23% or with other illegal drugs by 18% of recognized users. Methamphetamine and heroin were used by 23% and 6%, respectively. Twenty-three percent of the women used more than one drug.

Characteristics of Users

Recognized drug users differed from nonusers with regard to a number of characteristics. In univariate analysis, users were more likely than nonusers to have less than a high school education and to be under 25 years of age, Black rather than White, unwed, and from more urban counties. They were also more likely to use tobacco and alcohol during the current pregnancy, receive inadequate prenatal care, and have public assistance as a source of payment. However, in multivariate analysis, race, education, urban location, and maternal age under 25 years did not remain significantly associated with drug use (Table 1). Of all variables measured, tobacco use was most strongly associated with recognized drug use. Seventy-four percent of recognized drug users smoked and 22% used alcohol. Unwed marital status, public assistance as a

source of payment, and inadequate prenatal care remained statistically associated with recognized drug use.

Use of drugs other than marijuana occurred more frequently in non-Hispanic Black women compared with women of other races (OR = 7.9, 95% CI = 1.0, 170.0). Other socioeconomic or behavioral characteristics did not differ significantly between the groups.

Practitioner Screening and Referral

Seventy-nine percent of birth attendants indicated that they routinely asked their patients about drug use during pregnancy; 20% asked about drug use only if complications occurred (7%) or if there was clinical suspicion of drug use (13%). Drug use was recognized by 6% of birth attendants who routinely asked about substance abuse, compared with 3% of those who did not (OR = 2.1, 95% CI = 1.2, 3.7).

Information on whether the attendant made a referral attempt was known for 85 (59%) of the recognized drug users. Among these women, referrals were made for drug counseling (29%), consultation with a social worker (28%), consultation with a community health nurse or children's service division employee (27%); and drug or alcohol treatment programs (9%). Providers indicated that they had requested referrals in an additional 7% of cases but that services were unavailable.

Pregnancy Outcomes

In univariate analysis, recognized drug use was associated with low birthweight. When controlling for other factors associated with low birthweight in univariate analysis (inadequate prenatal care, unmarried status, receiving public assistance, Black race, low maternal education, tobacco and alcohol use, birth interval of less than 13 months, pregnancy-induced hypertension, and delivery of a previous small-for-gestational-age infant) in a linear regression model, recognized illicit drug use, on average, reduced birthweight by an estimated 80 g (P = .05).

In multivariate analysis, prematurity was not linked with recognized drug use. Other outcomes, such as placental abruption, neonatal respiratory distress syndrome, or congenital anomalies, occurred infrequently in both users and nonusers.

Discussion

This study indicates that a substantial number of childbearing women in a statewide cohort are being identified as illicit drug users by their practitioners. The estimate of 5.2%, however, is likely an underestimate of the actual prevalence of illicit drug use among these women. Classification of women as users or nonusers was based largely on information self-reported to birth attendants, and self-reports may underestimate the extent of illicit substance use by as much as 35%.[15] Moreover, urine testing was not done routinely in this survey; a recent survey in Rhode Island using urine assays at delivery found a prevalence of prenatal illicit substance abuse of 7.5%.[16]

Birth certificate data also underestimate drug use among pregnant women. Oregon has encouraged attendants to report recognized prenatal illicit substance abuse by using an open-ended question on birth certificates. Our data indicate that such monitoring underestimates the prevalence of recognized substance abuse by 59%. Communities using this approach should be aware of the potential magnitude of underreporting.

Practitioners who routinely asked their clients about prenatal drug use were more than twice as likely to recognize drug use as those who did not. Practitioner practice may be influenced by client population risk; in our study, practitioners who routinely asked about drug use were more likely to have clients who smoked or used alcohol, received inadequate prenatal care, and were unwed. These findings are consistent with a recent survey of hospital obstetric units for prenatal substance abuse.[17] High prevalence rates were correlated with preexisting protocols to detect use; lower rates were noted when clinical criteria were used.

To the extent that information from this survey generalizes to all Oregon births for 1989 (n = 41 223), an estimated 2140 women in that year were recognized as having used illicit drugs during pregnancy; this figure includes a minimum of 1000 who used cocaine, methamphetamine, or heroin. A recent statewide survey in Oregon identified 111 programs with a total of 740 treatment slots for pregnant alcohol or drug users.[18] Only 21 (19%) of the programs offered on-site child care, and 9 (8%) offered on-site medical referral. In fact, only 134 (18%) treatment slots were designated specifically for drug-addicted pregnant women and their children. Assuming a 1-year course of therapy, current treatment programs could accommodate only 13% of the estimated number of recognized users of cocaine, methamphetamine, or heroin.

In this statewide population-based cohort, recognized drug use during pregnancy was not confined to poorly educated minority women living in urban centers. The majority of identified users were White and had more than a high school education; more than one third did not reside in urban centers. Tobacco use was the single variable that best discriminated recognized drug users from other women; alcohol use was also strongly linked with recognized drug use. Illicit drug use is part of a larger problem of generalized prenatal substance abuse. Prenatal visits may provide an opportunity for practitioners to address these problems. Although inadequate prenatal care was associated with recognized drug use, 78% of recognized users had received adequate prenatal care. In most instances, substance abuse referral and counseling could occur before delivery.

Previous research has documented the magnitude of prenatal substance use in various settings. Our goal was to determine the magnitude and characteristics of the *recognized* problem. Our study indicates that the number of pregnant drug users currently being identified by practitioners is already sufficient to overwhelm an inadequate treatment capacity. Although continued research to assess the prevalence and characteristics of pregnant substance abusers is important, equal effort should be expended to ensure adequate resources to cope with the problem as already recognized. □

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