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Health Care Utilization Among Drug-Using and Non–Drug-Using Women

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ABSTRACT *This article explores patterns of health care utilization among urban female illegal drug users and nonusers. Interviews were conducted between August 1997 and August 2000 in Atlanta, Georgia, among current drug-using and nonusing women aged 18 to 71 years (n = 235). Women were recruited using outreach and targeted sampling. Data were examined with multivariate and bivariate methods. Compared to nonusers, the most frequent users were significantly more likely to fail to seek needed health care (adjusted odds ratio [aOR] = 3.31, 95% confidence interval [CI] = 1.18, 9.29) and to use a hospital emergency room as their primary source for care (aOR = 6.04, 95% CI = 1.97, 18.56). Multivariate results also suggest that age, self-rated health, alcohol use, insurance coverage, financial strain, and the presence of minor children are associated with health service utilization. Future health policy and research among similar populations must continue to address individual and sociodemographic factors that influence service utilization and seek to incorporate preventive care for vulnerable populations within emergency room settings.*

KEYWORDS *Age, Health care utilization, Illegal drugs, Women.*

INTRODUCTION

The utilization of health care services among women who use illegal substances is not fully understood. Although physical and psychological effects of illegal drugs have been well documented,[1–4] little is known about how their use impacts the women's utilization of health care services.[5,6] The number of studies focusing exclusively on women's health care utilization remains limited.[6–10] Women encounter unique health challenges, most notably those related to reproduction. Female drug users face additional challenges, including pelvic inflammatory disease, high-risk pregnancies, cervical dysplasia, and cancer.[11,12] Since the onset of the human immunodeficiency virus (HIV) epidemic among drug users, an increasing amount of research has centered on health issues related to HIV/AIDS (acquired immunodeficiency syndrome), including ways to encourage users to seek HIV counseling and testing and to provide services to those identified as HIV positive. In addition, the focus has shifted to drug treatment sites as a place for connecting drug users with health services.[13–15] Studies among out-of-treatment users are less common,[7,14] as are those comparing users to their nonusing counterparts.[5,13,16,17]

Determinants of health, the need for health care, and access to care all have been shown to differ according to age, gender, racial or ethnic background, socio-

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economic status, geographic location, and various enabling conditions.[18–28] In this article, we address those factors that have traditionally been associated with health care utilization in previous studies, but also examine the independent and interrelated contribution of age and drug use to utilization of services among a group of potentially underserved women. Given the high and possibly increasing mortality rate among many drug users,[29] often coupled with a high prevalence of unemployment, poor education, AIDS, criminal behavior, mental illness, and inadequate social support,[13,21,22] one would assume that many chronic drug users may be in the greatest need of care due to direct and indirect consequences of drug use.[13] Drug abuse has been associated with increased health care costs, increased health problems, and excessive use of emergency department care.[13,21,22] Low-income women—drug using as well as nonusing—have many competing unmet needs (e.g., child care, employment, socioeconomic-related stress), including medical care.[5,7–9,18] Despite the many steps taken to reduce disparities, financial barriers and socioeconomic factors continue to have an impact on preventive health care and access to care among vulnerable populations.[18–20,28]

Age differences in factors associated with health care and health care utilization have been demonstrated, but vary greatly depending on the particular health service examined and categorization of age groups. Even patient attitudes toward care have been shown to differ by age. Younger age has been associated with greater skepticism toward medical care, increased number of unhealthy behaviors, and having no insurance, while increasing age has been associated with having a personal physician.[23] In a sample of working-age adults in the United States, researchers found that older adults (45–64 years of age) were more likely to have a regular source of care than younger adults (18–44 years of age).[24]

Research among older age groups has revealed differences in age with regard to access to care and concern about the cost of care.[25,26] Rosenblatt and colleagues in 2000 found excessive emergency department use among a sample of elderly Medicare beneficiaries and found that patients with a regular physician were less likely to utilize emergency services.[26] In examining Papanicolaou smear screening status, Spurlock and colleagues found younger women (18 to 44 years old) to be less likely to see a private physician and to seek medical care of any type, other than pregnancy-related care.[10] Women aged 45 to 59 years, in their sample, indicated that cost of care was a barrier. Socioeconomic factors, including no telephone in the household, total family income of less than $10,000, and less than 10th grade education, were associated with Papanicolaou smear screening only among women aged 60 years or older.

This article advances our understanding of patterns of health service usage among a varied age group of female drug users and their nonusing counterparts by presenting both descriptive statistics and results of multivariate analyses that permitted us to explore specific drug-using differences while controlling for multiple sociodemographic and related health measures. We examine unmet need and the use of a hospital emergency room as indicators of utilization. Many health problems cared for in hospital emergency rooms could be prevented through outpatient, routine physician visits.[16,26] Among the heaviest users of illegal drugs and other vulnerable populations, the hospital emergency room is often a primary source for health care.[16,21,22,26,27] Identifying additional determinants or barriers to health care utilization among women of different age groups and with differing risks (i.e., drug use) is necessary for development of effective public health policy, as well as for the potential success of health care service systems in the era of managed care.[30]

METHODS

Data Source

Data were collected as part of a larger study on multigenerational drug use in Atlanta, Georgia. Indigenous outreach workers, trained in targeted sampling,[31] recruited women between August 1997 and August 2000. The outreach workers conducted a brief street intercept interview to verify the eligibility of the women. Areas within the Atlanta metropolitan area known for high rates of drug use, as demonstrated by epidemiologic indicators and previous ethnographic studies,[32] were chosen as recruitment communities. To participate, all women had to live in the Atlanta area; be 18 years or older; not be in substance abuse treatment, prison/jail, or any other institutional setting; and have a mother or daughter who resided in the area and who was willing to participate in the study. Additional eligibility criteria were included for those women who were drug users. They all were required to have used any illegal drug at least once 6 months prior to the interview. Being unable to conduct an interview in English and having a dual diagnosis (e.g., substance abuse combined with current psychiatric disorder) were exclusion criteria. Only two women were excluded for dual diagnosis; therefore, we felt that the potential for bias was minimal. The larger study included qualitative and quantitative data collection and involved classifying mother-daughter dyads in which both, either, or neither generation used drugs. Eligible women were scheduled for an interview at a centrally located research site or other setting convenient to the woman (e.g., at a local organization or establishment, their house, or in the interviewer's car).

Prior to the actual interview, participants were asked to review and sign an informed consent. A combined letter/numerical code was assigned to each participant, and no names were recorded on any of the interview materials. Experienced female interviewers conducted face-to-face interviews, and on completion of the interview, women were paid $15 for their participation. They also were offered referrals to local social and health service agencies.

The sample in the present analysis consists of 235 women—93 drug-using and 142 nonusing women—aged 18 to 71 years. Women who reported HIV-positive serostatus were excluded from the present analysis.

Dependent Variables

We hypothesized that age and drug use would be independently related to utilization of health services, specifically failing to seek care when needed and utilizing a hospital emergency room as the primary source for care. Thus, two dependent variables were investigated. Failure to seek health care, our first dependent variable, was measured as having any health problem in the last 12 months for which no care was sought (yes/no). The second dependent variable, utilizing a hospital emergency room as the primary or regular source for health care, was made operational by asking participants where they most often received care in the past 12 months. Sources included a doctor's office, community clinic where doctors work, community health center where no doctor's work, hospital outpatient clinic, hospital emergency room, psychiatric hospital, jail or prison, family planning clinic, or other place. Those who indicated they used a hospital emergency room as their primary venue were contrasted with those respondents who utilized other, typically outpatient, primary health care facilities. No respondents reported utilizing a jail or prison

clinic or psychiatric hospital; therefore, these locations were not included in the referent category.

Independent Variables

A variety of factors that have previously been associated with health care utilization was examined in this study as predictors of utilization, as represented by the two dependent variables above. These included basic sociodemographic information, including age (categorical, based on sample distribution), racial/ethnic background (African American, all other racial/ethnic groups), and education (less than high school diploma, high school diploma or GED, beyond high school), as well as health-related information, including insurance status (number of months with insurance in the past year), alcohol use (number of drinks per day), cigarette use (number of cigarettes smoked per day), and self-rated health over the past 12 months (poor/not good/okay, good, excellent/very good). Self-rated health was initially assessed on a 5-point scale; however, dichotomous categories were created in multivariate analyses due to the frequency distribution and limited sample size. Ethnic/racial background was dichotomized as African American versus all other backgrounds due to the predominance of African American participants. Reported personal and family income did not vary among our sample; therefore, they were not included in analyses. Due to the established relationship between alcohol and tobacco use and health problems,[33,34] these variables were included in all multivariate analyses.

We hypothesized that having minor children[7] and the level of financial strain during the past year would also influence service utilization. Financial strain in the past year was assessed as a composite measure ranging from 0 (no strain) to 9 (excessive strain). Participants were asked whether they ran out of money for food or transportation; ran out of money for housing; spent half of their income or more on housing and utilities; owed people more than they make in two months (excluding home or car loan); did not have enough money to pay all bills on time; were 120 days or more behind on a bill; had to borrow money for food, rent, or utilities; had to use a food bank, soup kitchen, or emergency shelter; argued regularly with others in family or household about money. The nine dichotomous items were summed to operationalize financial strain, which demonstrated internal consistency ($K\text{-}R_{20} = .75$). Individual items included in this measure were derived from previous research and have been shown to be both valid and reliable.[35]

Also examined in bivariate analyses with sociodemographic measures were questions on lifetime routine health care use (ever/never), mental health diagnosis (ever/never), and emergency room utilization (number of times treated). These items were also adapted from previous research among similar populations.[35]

Questions employed in the specific assessment of drug use history were derived from the Risk Behavior Assessment (RBA) developed by the National Institute on Drug Abuse. Respondents indicated whether they had used any of the following illegal drugs in the past 2 days, 30 days, and 90 days: crack or freebase cocaine, powder cocaine, heroin, heroin and cocaine (i.e., "speedball"), street methadone, other opiates, speed or amphetamines (including methamphetamine, methedrine), marijuana, and unprescribed medication (e.g., Ativan, Deprol, diazepam, Ultram, Xanax, Prozac, Serax, flurazepam, and Quaaludes). Injection drug use was not considered separately due to the small number of current or past-year injection drug users in the sample (n = 14). Throughout all bivariate analyses, drug use was examined accord-

ing to eligibility criteria for the larger study. "Nonusers" were defined as those who had never used heroin, cocaine, or methamphetamine or had not used an illegal drug in the last 5 years. In multivariate analyses, further categorization of drug use allowed us to compare past 2-, 30-, and 90-day users with nonusers.

Analysis

Characteristics of the sample were first examined according to sociodemographic and general health measures. To assess the homogeneity of these characteristics according to drug-using status and age, Mantel-Haenszel chi-square or Fisher's exact test of independence and one-way analyses of variance were applied. Differences in all sociodemographic and health-related topics were contrasted separately for drug users and nonusers, as well as by age group. Multivariate regression models were used to assess the statistical significance of associations between the independent variables of interest and the two dependent measures of health care utilization—failing to seek needed care and using a hospital emergency room as the primary source for care. Unconditional multivariate logistic regression was applied for dichotomous measures (PROC LOGISTIC, SAS). Hosmer-Lemeshow goodness-of-fit statistics, estimated coefficients, multivariate odds ratios, and 95% confidence intervals were used to quantify the variation in estimates of all logistic models.

Preliminary crude and stratified analyses with dependent variables were performed to confirm the inclusion of hypothesized independent variables as confounding terms that should be in the regression models and to identify possible interaction that should be addressed. In multivariate models, backward elimination of interaction according to statistical significance ($P < .05$) and evaluation of confounding first-order terms were performed.[36] However, any possible interaction terms remained insignificant.

RESULTS

Women in this sample were predominantly African American (89%), and over 90% reported an annual personal income of less than $6,000. Among the illegal-drug-using women, income from spouse, family, or friends (including child support or alimony) was the most common source of income (25%); followed by wages or salary from a legitimate job or business (18%); hustling, dealing, or other activities (17%); public assistance or welfare (15%); and Aid to Families with Dependent Children (AFDC) (11%). The most common source of income for nonusing women was wages or salary (41%), followed by income from spouse, family, or friends (23%), Aid to Families with Dependent children (16%), and Supplemental Security Income (7%).

Differences According to Illegal-Drug-Using Status and Age Group

Comparisons of sociodemographic and general health care measures according to drug-using status and age group are presented in Tables 1 and 2, respectively. Users and nonusers differed significantly on age, education, employment status, self-rated health, having health insurance, mental health history, having ever received a routine eye exam, lifetime hospital emergency room care, current alcohol and tobacco use, and financial strain (see Table 1). Significant ($P < .05$) differences according to age group on the following sociodemographic and health measures were observed: marital status, the presence of minor children, the frequency of illegal drug use,

TABLE 1. Sociodemographic and health care measures by generation and drug-using status (N = 235)

	Users, % (N = 93)	Nonusers % (N = 142)	*P**
Age, years			†
18–22	10.5	35.2	
23–34	27.4	17.2	
35–44	48.4	18.0	
45+	3.7	29.6	
Race/ethnicity			
African American	86.2	88.4	n.s.
White	11.7	9.5	
Other	2.1	2.1	
Education			‡
<High school diploma	47.4	36.1	
High school diploma/GED	36.8	36.8	
>High school	15.8	27.1	
Married or living as married (yes)	11.6	15.2	n.s.
Minor children (yes)	50.5	55.9	n.s.
Employed full time (yes)	3.2	28.3	†
Illegal drug use frequency (any illegal drug)			n.a.
Used in past 2 days	42.0	—	
Used in past 30 days	19.0	—	
Used in past 90 days	39.0	—	
Never/have not used in past 5 years	0.0	100.0	
Self-rated health (past year)			†
Excellent/very good	29.8	42.1	
Good	30.8	29.7	
Okay	27.7	20.7	
Poor/not good	11.7	7.5	
Health insurance (yes)	54.7	70.3	†
Ever diagnosed with mental health problem (yes)	27.4	12.4	§
Have regular place to go if sick or if need advice (yes)	88.4	93.7	n.s.
Ever had routine medical exam (yes)	98.9	97.9	n.s.
Ever had routine dental exam (yes)	85.3	89.7	n.s.
Ever had a routine eye exam (yes)	77.9	88.3	‡
Ever had routine pelvic exam (yes)	95.8	97.2	n.s.
Ever had Papanicolaou smear (yes)	96.8	97.9	n.s.
Ever had mammogram (yes)	41.1	45.5	n.s.
Continuous variables	Mean (SD)	Mean (SD)	
Number of months covered by any type of insurance (past year)	6.8 (5.9)	8.9 (5.1)	n.s.
Number of times treated in an emergency room (ever)	8.6 (16.5)	5.6 (8.6)	†
Tobacco use (cigarettes per day)	11.1 (9.6)	4.4 (7.6)	‡
Alcohol use (drinks per day)	3.1 (4.5)	1.3 (2.4)	†
Level of financial strain (past year)	3.0 (2.2)	2.0 (2.1)	§

n.a., not applicable; n.s., not significant.

**P* value for Mantel-Haenszel chi-square or one-way analysis of variance (ANOVA) test statistics or Fisher's exact estimate if appropriate.

†$P < .001$.

‡$P < .05$.

§$P < .01$.

TABLE 2. Sociodemographic and health care measures by generation and drug-using status (N = 235)

	Age group, years				
	18–22, % (N = 56)	23–34, % (N = 51)	35–44, % (N = 72)	45+, % (N = 56)	*P**
Race/ethnicity					
African American	86.9	88.2	86.1	87.5	n.s.
White	8.2	11.8	11.1	12.5	
Other	4.9	0.0	2.8	0.0	
Education					n.s.
<High school diploma	45.9	35.3	40.9	39.3	
High school diploma/GED	41.0	35.3	39.4	30.4	
>High school	13.0	29.4	19.7	30.3	
Married (yes)	2.0	13.7	11.1	30.4	†
Minor children (yes)	100.0	90.2	25.0	7.1	†
Employed full time (yes)	14.8	23.5	18.1	17.9	n.s.
Illegal drug use frequency (any illegal drug)					†
Used in past 2 days	6.6	15.7	27.8	8.9	
Used in past 30 days	3.3	7.8	13.9	3.6	
Used in past 90 days	6.6	27.5	22.2	10.7	
Never/Have not used in past 5 years	83.5	49.0	36.1	76.8	
Self-rated health (past year)					‡
Excellent/very good	49.1	39.2	33.8	26.7	
Good	31.2	29.4	32.4	26.8	
Okay	16.4	25.5	22.5	30.4	
Poor/not good	3.3	5.9	11.3	16.1	
Health insurance (yes)	68.8	62.7	54.2	73.2	n.s.
Ever diagnosed with mental health problem (yes)	16.4	17.6	22.2	16.1	n.s.
Have regular place to go if sick or if need advice (yes)	91.8	88.2	90.3	96.4	n.s.
Ever had routine medical exam (yes)	100.0	96.1	98.6	98.2	n.s.
Ever had routine dental exam (yes)	91.8	86.3	88.9	83.9	n.s.
Ever had a routine eye exam (yes)	85.3	72.6	86.1	91.1	n.s.
Ever had routine pelvic exam (yes)	98.4	96.1	95.8	96.4	n.s.
Ever had Papanicolaou smear (yes)	96.7	96.1	98.6	98.2	n.s.
Ever had mammogram (yes)	26.2	15.7	47.2	83.9	†
Continuous variables	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Number of months covered by any type of insurance (past year)	8.8 (5.2)	8.1 (5.5)	6.8 (5.9)	9.1 (5.1)	n.s.
Number of times treated in an emergency room (ever)	4.4 (7.3)	7.8 (16.3)	7.4 (14.9)	7.5 (8.5)	n.s.
Tobacco use (cigarettes per day)	4.5 (8.3)	6.6 (7.4)	9.8 (10.1)	7.1 (9.1)	§
Alcohol use (drinks per day)	0.7 (1.3)	2.7 (3.4)	3.1 (4.9)	1.5 (2.2)	n.s.
Level of financial strain (past year)	2.1 (2.1)	2.5 (2.3)	2.7 (2.0)	2.4 (2.4)	n.s.

n.a., not applicable; n.s., not significant.

**P* value for Mantel-Haenszel chi-square or one-way analysis of variance (ANOVA) test statistics or Fisher's exact estimate if appropriate.

†$P < .001$.

‡$P < .01$.

§$P < .05$.

self-rated health status, having ever received a mammogram, and current tobacco use (see Table 2).

The majority of women in the study reported having a regular place to go for sickness or health advice (see Tables 1 and 2). Despite the large proportion of women reporting a regular source of care, among drug-using women, the most common place for receiving care in the past year was a hospital emergency room (30%). Compared to their nonusing counterparts who indicated that this was their primary venue for health care (10%), this difference was significant ($P < .05$). The majority of all women, using and nonusing, reported having ever had routine medical and pelvic examinations and a Papanicolaou smear, whereas dental and eye exams were slightly less common. As expected based on age, mammography exams were less common among the youngest age groups (18 to 22 years and 23 to 34 years). However, a substantial proportion of older women in the sample reported never receiving a mammogram. Only 47% of women aged 35 to 44 years and approximately 84% of those aged 45 years or older reported ever receiving a mammogram.

Factors Associated with Health Care Utilization

Results of crude and multivariate analyses with the two dependent variables are presented in Table 3. Model 1 shows that, before adjusting for potential covariates, drug use, but not age, was significantly ($P < .05$) associated with failing to seek needed care, with the most frequent users (use in the past 2 days) more likely to fail to seek care than nonusers (crude odds ratio [cOR] = 3.66]. Race, self-rated health, financial strain, and the presence of minor children were also associated with failing to seek care (see model 1). After taking into account a variety of covariates, both drug use and age were associated with failing to seek care. As predicted, those who used drugs in the past 2 days were approximately 3 times more likely to fail to seek needed treatment than were nonusers (adjusted odds ratio [aOR] = 3.31, 95% CI = 1.18, 9.29). Compared to the youngest women in the sample (18 to 22 years), women aged 35 to 44 years were approximately 10 times less likely to fail to seek care (aOR = 0.10, 95% CI = 0.01, 0.58). Women 45 years or older were also significantly less likely than women aged 18 to 22 years to fail to seek care (aOR = 0.10, 95% CI = 0.01, 0.73). Self-rated health, the presence of minor children, and financial strain were also associated with failing to seek needed care. Respondents who indicated that their health was excellent or very good were less likely to fail to seek needed care than those who reported an okay or poor/not good health status (aOR = 0.33, 95% CI = 0.13, 0.85). Those with minor children were also less likely to fail to seek care compared to women without minor children (aOR = 0.10, 95% CI = 0.01, 0.44). Financial strain was marginally ($P < .10$) associated with failing to seek care, with the odds of failing to seek needed treatment increasing with each level of financial strain (aOR = 1.16, 95% CI = 0.99, 1.36). In addition to age and drug use frequency, the aforementioned variables and remaining variables (see Table 3, model 1) were important confounders and contributed substantially to model fit when examining unmet need for care as the outcome.

The importance of illegal drug use is again revealed in the results of the logistic analyses with the second dependent measure of interest, utilizing the hospital emergency room as the primary source or venue for health care (see model 2, Table 3). According to crude analyses, drug use frequency, but not age, was significantly associated with this outcome. Compared to nonusers, past-2-day and 90-day users were more likely to use a hospital emergency room as their primary source for care.

TABLE 3. Health care utilization in past year: Results from final multivariate logistic models

	Model 1*: failed to seek care when needed in the past year (N = 231)		Model 2*: hospital emergency room as primary place for care in past year (N = 231)	
	Crude OR	Adjusted OR (95% CI)	Crude OR	Adjusted OR (95% CI)
Age				
18–22 (referent)				
23–34	1.24	0.77 (0.23, 2.57)	0.95	0.32 (0.10, 1.16)†
35–44	1.34	0.10 (0.01, 0.58)‡	1.46	0.44 (0.14, 1.39)
45+	1.70	0.10 (0.01, 0.73)‡	1.11	0.76 (0.24, 2.39)
Race/ethnicity				
African American, non-Hispanic Other (referent)	0.48†	0.46 (0.16, 1.30)	2.28	2.41 (0.45, 13.03)
Education§	0.99	1.11 (0.67, 1.83)	0.56‡	0.65 (0.38, 1.12)
Self-rated health (past year)				
Excellent/very good	0.27‖	0.33 (0.13, 0.85)‡	0.99	—
Good	0.68	0.94 (0.40, 2.22)	0.84	—
Okay or poor/not good (referent)				
Illegal drug use history (any illegal drug)				
Use in past 2 days	3.66‖	3.31 (1.18, 9.29)‡	5.28‖	6.04 (1.97, 18.56)‖
Use in past 30 days	1.85	1.10 (0.28, 4.31)	2.48	2.38 (0.57, 10.0)
Use in past 90 days	0.39	0.30 (0.10, 1.42)	3.29‡	4.40 (1.44, 13.45)‖
Never/no use in last 5 years (referent)				
Alcohol use (drinks per day)	1.02	1.01 (0.96, 1.05)	1.07†	1.10 (0.99, 1.20)†
Tobacco use (cigarettes per day)	0.93	1.00 (0.83, 1.21)	1.03†	0.99 (0.95, 1.04)
Months covered by health insurance (past year)	0.98	1.01 (0.94, 1.08)	0.91‖	0.92 (0.86, 0.98)‡
Financial strain (past year)	1.21‖	1.16 (0.99, 1.36)†	1.25‖	1.25 (1.10, 1.48)‡
Minor children (yes)	0.47‡	0.10 (0.01, 0.44)‖	0.93	—
Equation statistics:				
–2 log likelihood		191.86‖		178.99‖
Hosmer-Lemeshow goodness-of-fit statistic		7.68 (n.s.)		9.76 (n.s.)
R^2		0.26		0.27

CI, confidence interval; OR, odds radio.
*Unconditional maximum likelihood Estimation logistic model.
†$P < .10$.
‡$P < .05$.
§Education (rated 1–3): >high school, high school diploma or GED, <high school diploma.
‖$P < .01$.

Education, daily alcohol and tobacco use, past year insurance coverage, and financial strain were also significantly associated with the use of an emergency room (see model 2). Even after controlling for various enabling factors such as insurance coverage and financial strain, the most frequent illegal drug users (i.e., in past 2 days) were six times as likely to use a hospital emergency room as their regular source for health care than were nonusers (aOR = 6.04, 95% CI = 1.97, 18.56). Respondents who had used in the past 90 days were approximately four times more likely than nonusers to use an emergency room as the primary source for care (aOR = 4.40, 95% CI = 1.44, 13.45). Adjusting for additional covariates, age was an important contributor to the model, although it was only marginally significant ($P < .10$). Women aged 23 to 34 years were less likely to use a hospital emergency room as their primary source for care than were those aged 18 to 22 years (aOR = 0.32, 95% CI = 0.10, 1.16). The greater the number of months covered by any type of insurance, the less likely respondents were to utilize a hospital emergency room as the primary source for care (aOR = 0.92, 95% CI = 0.86, 0.98). Conversely, the greater the degree of financial strain experienced in the past year, the greater were the odds of respondents using a hospital emergency room as their primary source for care (aOR = 1.25, 95% CI = 1.10, 1.48). Daily alcohol use was also marginally ($P < .10$) associated with utilizing an emergency room, with increasing alcohol use associated with an increased likelihood of health care at such a facility. Remaining variables contributed substantially to the multivariate model (see model 2, Table 3).

DISCUSSION

This study adds to the limited literature regarding health care utilization of noninstitutionalized female drug users and, more specifically, of diverse age groups of potentially underserved and vulnerable women. In addition to comparing overall health histories and health-related issues between current illegal drug users and nonusers and among varying age groups, the main purpose of this analysis was to investigate patterns of health service utilization among these women. We hypothesized that, after taking into account particular sociodemographic characteristics, both drug-using status and age would be independently related to failing to seek needed health care and to utilizing a hospital emergency room as the primary source for care.

Studies have shown the contribution of age to health care utilization.[10,23–26] In this analysis, age was an important contributor to both indicators of health care utilization and was significantly ($P < .05$) associated with failing to seek needed care after additional factors were taken into account. Despite their drug-using history, education, self-rated health, insurance coverage, degree of financial strain, and other factors considered, older women (35 years or older) in our sample were significantly less likely to fail to seek needed care. Although variation in hospital emergency room utilization according to age was only marginally significant for one comparison, a general trend among the women in our sample can be seen. The youngest (18 to 22 years) and oldest (45 years or greater) women were more likely to consider a hospital emergency room their primary source for care, with the oldest women being slightly less likely than the youngest group.

Findings reveal the importance of considering not only drug use in general when examining health care issues among users, but also the frequency of drug use. For example, users and nonusers in our sample differed in the likelihood of failing to seek needed care only when the complete drug use history was considered (data

not shown). Chitwood and colleagues[17] have demonstrated the lack of health service treatment among chronic (e.g., using illegal drugs weekly or more[37]) drug users compared to nonusers. Chronic users in their study were significantly less likely than nonusers to receive services, despite an increased need for health care. Being female was also independently associated with an increased need for care in their sample,[17] further highlighting the importance of the drug-using women in our sample not receiving needed care. Results of this study corroborate their reported findings, but we also contrasted separately three frequency categories of users with nonusers. The most frequent users in the present sample (use in past 2 days) were significantly more likely to fail to seek needed care than were nonusers, while no significant differences were found between 30- and 90-day users compared to nonusers.

Not only were the women who used drugs the most frequently in our sample more likely not to receive needed care, they also were more likely than their nonusing counterparts to consider a hospital emergency room their regular place for care. It has been recently reported that chronic drug users consume significantly more inpatient and emergency care and less outpatient services relative to nonusers.[7,13,16] Such health-seeking behavior may be related to their lifestyle or to their actual health status, although McGeary and French[16] have demonstrated that chronic users were more likely than casual or nonusing counterparts to seek access to medical treatment in an emergency room setting, even after controlling for unobservable determinants of extensive drug use. After taking into account the level of financial strain, insurance coverage, and other enabling factors, drug use history was the strongest predictor of emergency room utilization among the women in our sample.

As our results indicate, drug use is not the only factor influencing health care utilization among the women in this study. A host of factors may influence service utilization; nonetheless, multivariate results suggest that age, self-rated health, alcohol use, insurance coverage, financial strain, and the presence of minor children are significantly associated with health service utilization.

Distinguishing patterns of health service use between users and nonusers of illegal drugs not only will aid in critical policymaking decisions, but also will provide useful information for health service providers. For example, although not shown, the source of preventive health information for the women in this study varied by drug-using status as well as by age. Women of all age groups, using and nonusing, received health information from family, friends, radio, and television, with greater proportions of older women reporting information from radio and television and more younger women receiving information from magazines. A greater proportion of younger drug-using women (< 35 years) reported receiving health information from pharmacies compared to older drug-using women and to younger nonusers. Older drug-using women were more likely to receive health information from a church, temple, or synagogue when compared to younger users. Such information can be applied in health promotion and prevention efforts among similar at-risk women.

Despite society's increasing concern for female illegal drug users, their offspring, and their families, few resources are provided to assist the women. For example, limited drug treatment options that take the unique needs of women into consideration are available.[38] Existing service systems must look for methods of ensuring the continuity of care for at-risk women, drug using or non using. Drug users have been shown to be active consumers of human service organizations.[39] Many human service organizations outside the health care sector can identify be-

havioral and other health problems and can prompt users to access treatment and other health care services. Referrals to medical services by street outreach workers have been effective among injection drug users.[40] Likewise, needle-exchange participation has been shown to promote entry into detoxification among injection drug users.[41]

Social and cultural factors related to the use of preventive and acute health services should also be considered. Different cultural orientations of the physician and patient can lead to discrepancies in health behaviors and use of health services.[42] Studies have documented communication problems between physicians and patients who are of low socioeconomic status, older, and African American.[9,27] This is disheartening, especially if the relationship with a regular physician has a profound influence on access to care[28] and the potential for preventive health information relative to emergency rooms.[16] Traditional norms and experiences of interaction with physicians are likely to influence the use of care for older women, as well as for drug-using women. Women who disclose their drug-using habit may receive scrutiny from health care providers and, in turn, come to distrust service providers. Nonetheless, disclosure by the patient is not the only problem surrounding drug abuse. A recent survey revealed that less than one third of primary care physicians routinely screen for substance abuse.[43] Physicians must also take the steps necessary to identify and address drug abuse problems among women and men alike and among those from all sociodemographic backgrounds.

In spite of the important information presented, this analysis is not free from limitations. Measures utilized in this study were limited to the chosen outcomes and health-related items because the questionnaire offered limited information on characteristics related to the demand for health care or the type of care received as that was not the goal of the overall study. We felt, however, that the sample itself was unique due to the inclusion of both users and nonusers of illegal drugs and women of various ages.

Although the self-reported measures, small sample size, and sociodemographic characteristics of our sample limit the generalizability of the findings to a more representative national sample, results highlight an important consideration—the extent to which urban female illegal drug users are seeking care and underutilizing preventive health services. Ensuring quality care for such women is important not only for the women themselves, but also for society as a whole in its efforts to reduce drug-related health issues.

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