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DRUG USE AND PROBLEM DRINKING ASSOCIATED WITH PRIMARY CARE AND EMERGENCY ROOM UTILIZATION IN THE US GENERAL POPULATION: DATA FROM THE 2005 NATIONAL ALCOHOL SURVEY

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Abstract

Background—Substance use problems are overrepresented in probability samples of patients in primary care settings including the emergency room (ER) compared to the general population. While large proportions of those with alcohol or drug use disorders are most likely to obtain services for these problems outside of the mental health or substance abuse treatment system, accounting, in part, for this overrepresentation, little is known about the association of alcohol misuse or drug use with health services utilization in the general population.

Methods—The prevalence and predictive value of alcohol misuse and drug use on ER and primary care use was analyzed on 6919 respondents from the 2005 National Alcohol Survey.

Results—Among those reporting an ER visit during the last year, 24% were positive for risky drinking (14 + drinks weekly for men and 7+ for females and/or 5+ /4+ in a day in the last 12 months), 8% for problem drinking, 3% for alcohol dependence, and 7% for illicit drug use greater than monthly. Figures for primary care users were, respectively: 24%, 5%, 3% and 3%. ER users were more likely to be positive for problem drinking and greater than monthly illicit drug use compared to non-ER users, while no significant differences were found in substance use for users and non-users of primary care. In logistic regression controlling for gender, age, and health insurance, problem drinkers were twice as likely as non-problem drinkers (OR=1.99) ($p<0.01$), and those reporting greater than monthly drug use were almost twice as likely as those using drugs less frequently or not at all (OR=1.92; $p=0.01$) to report ER use, while those reporting alcohol dependence were 1.63 times more likely to report primary care use ($p<0.05$).

Conclusion—These data support the belief that both the ER and other primary care settings are important sites for identifying those with substance use problems and for initiating a brief intervention.

Keywords

epidemiology; primary care; emergency departments; services; assessment

1. INTRODUCTION

Substance use problems have been found to be overrepresented in probability samples of patients seen in primary care settings including the emergency room (ER) compared to the general population (Cherpitel, 1995). Large proportions of those with alcohol or drug use disorders in the U.S. are most likely to obtain services for these problems outside of the mental health or substance abuse treatment system (Kessler et al., 1994; Regier et al., 1993), which may account, in part, for this overrepresentation. Additionally, more frequent users of ERs or primary care clinics are more likely to fall into samples drawn from these facilities than less frequent users.

Heavy and problem drinking are common among ER patients (especially those with injuries) (Cherpitel, 2007), and both ER and primary care patients have been found to report higher rates than those in the general population from which they come (Cherpitel, 1995). A recent study of injured ER patients in 14 countries found that heavy drinking (five or more drinks per occasion at least monthly) and drinking symptomatic of dependence were predictive of ER use and multiple use in the previous year (Cherpitel et al., 2006).

Less is known about the association of heavy or problem drinking or drug use with primary care and ER utilization in general population samples, however, which may provide a better understanding of the burden which substance uses places on the general health care system and characteristics of these individuals. Data from the 1995 National Alcohol Survey (NAS) found substance use more associated with ER use than primary care use, with prior treatment for substance use problems predictive of ER utilization (Cherpitel, 1999). Data from the 2000 NAS compared to the 1995 NAS found a higher prevalence of alcohol dependence for those reporting either ER or primary care use in 1995 (6%) compared to 2000 (3%), but heavy problem drinking was not predictive of services use at either time (Cherpitel, 2003). Drug use, however, was predictive of both ER and primary care services use in 1995 and in 2000. To further explore the association of substance use with ER and primary care services utilization, data were analyzed on respondents interviewed in the 2005 NAS. The prevalence of substance use among those utilizing ER and primary care services and the predictive value of substance use on utilization of these services are important for a better understanding of selection factors (including substance use) which result in utilization, and for identifying those settings which may provide the best opportunity for screening, and potentially, for brief intervention for substance-related problems.

2. METHODS

2.1 Samples

Data analyzed are from the Alcohol Research Group's 2005 National Alcohol Survey. Fieldwork was sub-contracted to DataStat, Inc and data were collected using Random Digit Dial (RDD) Computer Assisted Telephone Interviews (CATI) of the U.S. general population 18 and over in all 50 US states and the District of Columbia, with an over-sampling of blacks and Hispanics, targeting high-density minority regions, to obtain a sufficient sample size for racial/ethnic comparisons (not a focus of the present paper). Prior to the interview, an introductory letter was mailed to selected households, preparing them for a call approximately a week later. Callbacks were made using DataStat's proprietary algorithm (The Grazer), which uses neural network techniques to examine call history for every active case, and generates a probability of obtaining the completed case based on call results and a rule-base developed through thousands of field studies. Once an individual was reached, an adult household member was identified based on the most recent birthday technique. Completed interviews were obtained on 6919 respondents, representing a 56% completion

rate. Non-response in both surveys was due to refusals, incapacitation, language barriers and failure to establish contact.

2.2 Data Collection

Interviews were conducted with informed consent once contact had been made with the respondent by trained interviewers using a structured interview schedule of about 45 minutes in length. Hispanic respondents were given a choice of being interviewed in English or in Spanish, with bilingual interviewers. The Spanish version of the questionnaire underwent a process of translation and independent back-translation. Respondents who self-identified as either “white of Hispanic origin” or “black of Hispanic origin” (Latino, Mexican, Central or South American, or any other Hispanic origin) were classified as Hispanic. Respondents who self-identified as “black, not of Hispanic origin” were categorized as black. All other respondents were included in the “white and other” category for analyses reported here. A breakdown of the ‘other’ category can be found in the footnote to Table 1.

2.3 Instruments

Respondents were asked whether they had had an injury or illness during the last year for which they thought about treatment, whether they had obtained treatment for that event, and the type of treatment obtained (ER, primary care, or other type of treatment). Respondents were also asked questions related to the quantity and frequency (Q-F) of usual drinking and the maximum number of drinks in a day, alcohol-related problems, alcohol dependence, the frequency of illicit and non-prescription use of psychoactive drugs, all during the last year, and demographic characteristics including age, gender, ethnicity, and health insurance coverage.

All respondents were categorized as follows: non-risky drinkers, risky drinkers, problem drinkers, and alcohol dependent, as defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (NIAAA, 2007). *Risky drinkers* were those having 14+/7+ drinks weekly for men/women (based on the Q-F measure), or 5+/4+ drinks in a day at least once in the last 12 months. *Problem drinking* was measure by reporting at least one out of 15 consequence items during the last year. The consequence scale covered areas involving job-workplace problems (3 items), trouble with the law (3 items), aggression (4 items), social and health problems (3 items) and accidents (2 items), and has been widely used in earlier National Alcohol Surveys (Midanik and Greenfield, 2000; Midanik and Clark, 1995).

Alcohol dependence covered 17 items assessing aspects in each of the 7 domains reflecting the symptom contents defined for the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) (American Psychiatric Association, 2000) criteria (Caetano and Room, 1994), including tolerance, withdrawal, drinking more than intended, unsuccessful efforts to control, giving up pleasures or interests to drink, spending a great deal of time in drinking activities, and continued use despite problems. A respondent was considered alcohol dependent if positive on three or more domains. When positive for both problem drinking and dependence, the respondent was defined as alcohol dependent.

Frequent illicit drug use was defined in this study as use more often than monthly (including reports of “daily”, “once a week or more often” and “once every two or three weeks”), since our interest was in illicit drug use on a regular basis, and any such use has been considered problematic. Drug use was elicited in the following categories: speed or amphetamines, cocaine or crack, tranquilizers, heroin or opium, methadone, marijuana or THC, hallucinogens, non-medically prescribed painkillers and other opiates. Of these, the vast majority (71.4%) reported only marijuana/THC use, while 12% reported only the use of

tranquilizers, and another 7.3% reported both Marijuana/THC use and use in one of the other drug categories as well.

2.4 Data Analysis

Data were analyzed by whether the respondent reported any ER use in the preceding year and whether he reported any use of other primary care services or other types of health services.

Data were weighted to adjust for the probability of selection (number of households, multiple phone lines and adult residents in households), and non-response. Post-stratification weights were also applied to reflect demographics of the US adult (18+) population in terms of gender, age, region and ethnicity, and for Hispanics, the country of birth. Data were analyzed using STATA, Version 8, and all analyses were weighted using STATA SURVEY commands (Stata Corp., 2003).

Drinking and drug use variables are compared between users and non-users of ER and primary care services during the last year, using tests of significant difference between sample proportions. Multiple logistic regression was used to examine the predictive value of risky drinking, problem drinking, alcohol dependence and illicit drug use more than monthly, separately for ER use and for primary care use, controlling for gender, ethnicity, age and health insurance. Odds ratios (OR) are reported for all variables in the equation and 95% confidence intervals (CI) for those variables found to be significant predictors.

3. RESULTS

Table 1 shows demographic and substance use characteristics for the total sample. Overall, 23% of the sample were risky drinkers, 5% were positive for problem drinking, 3% were alcohol dependent, and 4% reported illicit drug use greater than monthly. Close to 9% of the sample reported ER use during the preceding year while 28% reported a primary care visit.

Table 2 compares substance use patterns between users and non-users of the ER, and of primary care services. ER users were twice as likely to be problem drinkers and to use illicit drugs more often than monthly during the last year, while no significant differences were found in substance use variables between users and non-users of primary care services.

As seen in Table 3, both problem drinking and greater than monthly drug use were significant predictors of ER use, with problem drinkers twice as likely ($OR=1.99$; $p<0.01$) to report ER use than non-problem drinkers, and those reporting drug use more than monthly almost twice as likely ($OR = 1.92$; $p < 0.05$) to report ER use, compared to those using drugs less frequently or not at all. Only alcohol dependence was a significant predictor of primary care use, with those dependent 1.63 times more likely to report primary care use during the past year than those not dependent.

4. DISCUSSION

Data from the 2005 NAS found that 30% were positive for risky drinking, problem drinking or dependence, with 24% of this group (of risky, problem or dependent drinkers) positive for either problem drinking or dependence. These findings are similar to those reported by NIAAA's clinician's guide to helping patients who drink too much, based on data from the National Epidemiological Survey on Alcohol and Related Conditions (NESARC): 30% and 25%, respectively (US Dept. of Health and Human Services, National Institute on Alcohol Abuse and Alcoholism, 2007). Analysis of the association of problem substance use with health services utilization in the general population found problem drinking and greater than

monthly illicit drug use predictive of ER use while alcohol dependence was predictive of primary care use in the 2005 U.S. National Alcohol Survey. Similar data from the 2000 NAS, also a telephone interview survey, found no association between heavy drinking, problems or dependence, and either ER or primary care services utilization (Cherpitel, 2003). It should be noted, however, that the 2000 NAS problem drinking category may have also included some who were alcohol dependent, while the 2005 NAS problem drinking and dependence categories were mutually exclusive – any respondent meeting criteria for both problem drinking and dependence was categorized as dependent. A similar significant association was found for drug use in the 2000 and 2005 NASs (Cherpitel, 2003). In both the 2000 and 2005 NASs, illicit drug users (reporting greater than monthly use) were found to be almost twice as likely to report ER use than those using drugs less often or not at all, controlling for demographic characteristics and health insurance coverage (2000 OR = 1.85; 2005 OR = 1.92). In the 2000 NAS, however, illicit drug use was also found to be significantly associated with primary care use (OR = 1.55). There were no differences in coding of frequent drug use between the two survey years, nor were there any significant differences in the prevalence of drug categories reported, which might account for this differential association. It is possible that those with health problems related to their drug use may be choosing ER treatment over primary care treatment, although health insurance coverage (more indicative of primary care than ER utilization) also did not differ between the two survey years. These data suggest that frequent drug users, as well as those meeting criteria for problem drinking or dependence, but not risky drinkers, may be incurring more health problems (related to their use) than those not meeting substance use criteria, and that problem drinking and drug use may be more likely to result in more immediate health problems requiring ER treatment, while alcohol dependence may result in health problems which require more ongoing attention in the primary care setting. In univariate analysis (Table 2), no difference was found between users and non-users of primary care services, however, controlling for age (Table 3), dependence was found to be a significant predictor of primary care use, since age is positively associated with primary care use (Table 3), but negatively related to alcohol dependence (not shown).

One caveat to the findings here on the association of alcohol use variables and health services utilization is that the dependent variable in these analyses was whether or not the respondent made any ER or primary care visit during the preceding year, and not the number of such visits. It is possible that heavy problem drinkers are heavier users of health services and drinking variables would be predictive of frequency of services use, if not of any use per se (Cherpitel, 1995). Additionally, the measure of illicit drugs analyzed here included different subgroups of drug users in one category, and use of different categories of drugs may be differentially predictive of ER and primary care services use.

Health insurance coverage was not found to be a predictor of ER use in either the 2000 or 2005 NAS, although those with health insurance were more likely to report primary care services use in both surveys. Although no difference in health insurance coverage was found between the 2000 and 2005 National Alcohol Surveys (87% and 85.5%, respectively), health insurance is of particular interest in relation to the potential effect of health care reform and resulting changes in health care coverage on associations of substance use and health services utilization. While more equitable access to health care may increase the likelihood of diagnosis and treatment related to substance use, especially among ethnic minorities, it has not been found, in itself, to be sufficient to reach those with substance-use problems (Cherpitel, 1995), and this is an area of research which requires further exploration.

While identification and intervention with problem drinkers in clinical settings has received a great deal of attention, drug users may also be over-represented in health service settings. These data support the belief that the ER and other primary care settings are important sites

for identifying those with substance use problems and for initiating a brief intervention. As screening, brief intervention and referral to treatment (SBIRT) (Academic ED SBIRT Research Collaborative, 2007a; Academic ED SBIRT Research Collaborative, 2007b) programs proliferate and trauma centers are required to develop screening and brief intervention programs (Committee on Trauma, American College of Surgeons, 2006), ERs may benefit from devoting increased resources to interventions and resources for problem drinkers and drug users, while primary care programs may need greater resources for addressing alcohol dependence.

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Table 1

Demographic, Drinking and Drug Use

Characteristics	
	N (n=6,919)
Male	48.2%
Ethnicity	
Whites or others ^a	76.5%
Hispanic	12.4%
Black	11.1%
Age	
18-29	20.5%
30-49	40.3%
50+	39.2%
Health insurance	85.5%
Risky drinking pattern	
Non-risky	70.2%
Risky	22.7%
Problem drinking	4.5%
Alcohol dependence	2.5%
Illicit drug use > monthly	3.5%
ER use	9.2%
Primary care use	27.5%

^aOthers includes Asians, Native Americans including Alaskan Natives and Pacific Islanders

Table 2

Distribution of Drinking Patterns and Frequent Illicit Drug Use by ER and Primary Care Use

	ER Use		Primary Care Use	
	Yes	No	Yes	No
Risky drinking pattern				
Non-risky	65.8%	70.7%	68.7%	70.8%
Risky	23.5%	22.7%	23.9%	22.3%
Problem drinking	8.0%	4.2% ^{**}	4.6%	4.5%
Alcohol dependence	2.8%	2.5%	2.8%	2.4%
Illicit drug use > monthly	6.6%	3.2% ^{***}	3.2%	3.6%

^{**}
 $p < .01$

^{***}
 $p < .001$, test of difference in proportion

Table 3

Odds Ratios and Confidence Intervals of Logistic Regressions Predicting ER and Primary Care Use

	ER Use	Primary Care Use
Male vs Female	0.94 (0.72, 1.17)	0.82 (0.72, 0.95) **
Ethnicity (ref. whites and others)		
Hispanic	0.54 (0.38, 0.75) ***	0.56 (0.46, 0.69) ***
Black	1.12 (0.87, 1.46)	0.60 (0.49, 0.74) ***
Age (ref. 18-29)		
30-49	0.87 (0.63, 1.21)	1.42 (1.13, 1.78) **
50+	0.95 (0.68, 1.32)	1.46 (1.16, 1.84) **
Health insurance vs not	1.04 (0.73, 1.46)	2.30 (1.81, 2.91) ***
Risky drinking pattern (ref. non-risky)		
Risky	1.07 (0.80, 1.44)	1.11 (0.93, 1.32)
Problem drinking	1.99 (1.26, 3.17) **	1.28 (0.91, 1.80)
Alcohol dependence	1.10 (0.59, 2.03)	1.63 (1.00, 2.63) *
Illicit drug use > monthly	1.92 (1.16, 3.16) *	1.02 (0.68, 1.54)

*
 $p < .05$ **
 $p < .01$ ***
 $p < .001$