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TRENDS IN ALCOHOL- AND DRUG-RELATED ED AND PRIMARY CARE VISITS: DATA FROM THREE U.S. NATIONAL SURVEYS (1995–2005)

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Abstract

Objective—To evaluate trends in alcohol- and drug-related ED and primary care visits over the previous decade.

Method—A trend analysis was conducted on substance-related health services visit data, based on self-reported drinking or drug use within six hours prior to an injury or illness event, from the 1995, 2000 and 2005 National Alcohol Surveys.

Results—Although an upward trend was observed in alcohol-related ED visits from 1995 to 2005, this increase was not significant. A significant trend was found for drug-related ED visits from 0.6% in 1995 to 3.7% in 2005 ($p<0.01$). In multiple logistic regression, year of survey (2000 vs. 1995) was positively predictive of drug-related ED visits, controlling for gender, age, ethnicity and health insurance coverage; however, year of survey (2005 vs. 2000) was not significant.

Conclusion—These data suggest that drug-related ED visits are continuing to increase, although the increase has not been as substantial between 2000 and 2005, as that which was observed between 1995 and 2000, and highlight the opportunity provided by the ED and primary care settings for screening and brief intervention for substance-related problems. These findings also suggest that Healthy People 2010 objectives calling for a reduction in substance-related visits may not be reached.

Keywords

Emergency Department; Primary Care; Services Utilization; Substance Use

INTRODUCTION

Both alcohol and drug use have been found to be over-represented in samples of patients in primary care and emergency department (ED) settings, with ranges varying from 6% to 59% for positive blood alcohol concentration (BAC) [1] and 35% to 40% for positive toxicology screen for illicit drugs [2] among injured ED patients. No national surveillance system exists in the U.S. to detect trends in alcohol-related visits, however, although a surveillance system for drug abuse-related ED visits has been in place in a sample of EDs since 1972 (the Drug Abuse Warning Network or DAWN system) [3]. The DAWN system is based on a review of medical records of the ED visit, however, and only includes those cases where the drug-related episode is identified as the primary reason for the visit. When compared to toxicology screens from the same facility, DAWN has been found to under-report drug-related visits [4,5]. Other national data systems used for monitoring epidemiologic patterns of substance abuse among

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ED patients, such as the National Hospital Ambulatory Medical Care Survey (NHAMCS) [6], have similar limitations to the DAWN system.

ED-based monitoring of substance-related visits is not common practice. A survey of trauma centers found only 55% reported routinely obtaining admitting blood alcohols [7], and this was not found to have increased appreciably in a similar survey conducted five years later [8]. Only 40% of the level I and II trauma centers and 26% of level III centers were found to routinely perform drug screens [8], and close to half of these facilities tested less than 75% of their patients. Additionally, the response rate was only 59%, suggesting that the percent of trauma centers routinely performing screens for either alcohol or drugs may be considerably lower, given those less likely to screen were probably also less likely to respond to the survey. One reason cited for failure to screen for alcohol in the ED is the concern with being denied reimbursement for costs related to the ED visit if the patient screens positive (Schermer, et al., 2003), stemming from the Uniform Accident and Sickness Policy Provision Law (UPPL) which allows third party payers (insurers) to deny reimbursement for medical services, if a patient is found to be intoxicated at the time of sustaining the condition [9].

An earlier study of changes in reported substance use prior to an ED visit between 1995 and 2000 in the U.S. general population found no reduction in alcohol-related visits, but an increase in drug-related visits which did not appear to be related to an increase in drug use in general [10]. Given the limitations in both national and ED-based surveillance and monitoring systems for alcohol- and drug-related ED visits, reported here are data on substance-related health services visits (ED and primary care), based on self-reported drinking or drug use within six hours prior to an injury or illness event, from three U.S. National Alcohol Surveys (1995, 2000, 2005), to evaluate further trends in substance-related utilization over the last decade.

METHODS

Samples

Data analyzed are from the Alcohol Research Group's 1995, 2000 and 2005 National Alcohol Surveys (NASs). Fieldwork for the 1995 and 2000 surveys was subcontracted to the Institute for Survey Research at Temple University, while fieldwork for the 2005 survey was sub-contracted to DataStat, Inc. Data for the *1995 survey* were obtained from face-to-face interviews in respondents' homes in the 48 contiguous states. A multistage area-probability sample was drawn, of those 18 years and older living in households, using 100 primary sampling units, with an over-sampling of blacks and Hispanics. Completed interviews were obtained on 4925 respondents, representing a 77% completion rate.

Data from both the *2000 and 2005 survey* were collected using Random Digit Dial (RDD) Computer Assisted Telephone Interviews (CATI) of the U.S. general population 18 and over in all 50 U.S. states and the District, with an over-sampling of blacks and Hispanics, and an over-sample of low-population states. Completed interviews were obtained on 7612 respondents, representing a 58% completion rate in the 2000 survey and on 6919 respondents, representing a 56% completion rate in the 2005 survey (which has been considered acceptable rates for telephone surveys [11]. Non-response in all three surveys was due to refusals, incapacitation, language barriers and failure to establish contact. While potential biases may be related to differing modes of the survey, from face-to-face in 1995 to telephone in 2000 and 2005, the effect of mode of administration was examined between the 1995 and 2000 surveys, with few differences found in either reported consumption or alcohol-related harm [12,13].

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 one hour in length for the 1995 in-person interview and 45 minutes for the 2000 and 2005 telephone interview. 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.

Instruments

Respondents were asked if they had had an injury or illness during the last year for which they thought about treatment, whether they obtained treatment for that event, and the type of treatment obtained (ED, primary care, or other type of treatment). If respondents reported more than one injury or illness, information about the most recent event was elicited. Respondents were also asked if they had consumed any alcohol in the six hours prior to the injury or onset of the illness (alcohol-related event) or if they had taken any drugs (illicit or non-prescription psychoactive) in the same six-hour period (drug-related event). Drug use during the last year included any use in the following categories: speed or amphetamines; cocaine or crack; tranquilizers; heroin or opium; methadone, marijuana or THC; hallucinogens; non-prescription painkillers; other opiates. Those who reported any drinking in the six hours prior to either the injury or illness were also asked whether they felt the event would have happened if they had not been drinking (alcohol-caused). Given the focus of the survey was on alcohol use and time constraints, a parallel question regarding drug attribution was not asked. Data on demographic characteristics, including gender, age, ethnicity, and health insurance coverage, were also obtained.

Data Analysis

Four categories of health service use are analyzed for those reporting an injury or illness for which they thought about getting treatment during the preceding year: ED use, primary care use, any use of health services (which included ED and primary care as well as other types of health service providers), and no use of health services.

The Mantel-Haenszel chi-square test was used to test for a significant linear trend across the three surveys for those reporting drinking prior to the injury or illness event, those reporting drug use, and those attributing a causal association of alcohol and the event, separately for those obtaining ED treatment, primary care treatment (PC), any treatment (Any TX) and no treatment (No TX) (Table 1).

Logistic regression was used to examine the predictive value of year of survey (1995 vs. 2000 and 2005 vs. 2000), controlling for gender, ethnicity, age and health insurance coverage, on reporting alcohol use within six hours prior to the event, and on reporting drug use, separately, for those obtaining ED treatment, those obtaining primary care treatment, those obtaining any treatment, and those obtaining no treatment for their injury or illness (Table 2). Odds ratios are reported for all variables in each model.

Data were weighted to reflect the probability of household and respondent selection, ethnic over-sampling and non-response rates. In the 2000 and 2005 telephone surveys, data were also weighted to reflect low-population state over-sampling, multiple phone lines, and non-coverage due to non-telephone households. To adjust for the design effects inherent in cluster sampling in the 1995 in-person survey, as well as nonidentically-distributed sampling in all

three surveys, Stata [14] was used to correct for estimates of standard errors in Tables 1 and 2. For computing combined estimates across the three surveys, the 2000 and 2005 surveys were each counted as a single strata and combined with those from the 1995 survey. Although the three surveys may contain primary sampling units (PSUs) drawn from the same geographic locality, they are treated as separate units because of their temporal separation.

RESULTS

Table 1 shows differences in the proportion of those reporting alcohol- and drug-related visits by type of health service utilization. A significant upward trend was found from 1995 to 2005 in drug-related visits among ED patients and among those obtaining any treatment. While no significant trends were found for an alcohol-related event, or for an alcohol-caused event among those who reported drinking, there was a 2% increase in alcohol-related ED visits between 1995 and 2005.

Table 2 shows odds ratios for year of survey on reporting an alcohol- or drug-related event, separately across treatment-type categories, controlling for demographic characteristics. Those interviewed in 1995 were significantly less likely ($p<0.001$) to report a drug-related ED visit compared to those in 2000.

DISCUSSION

Trends in substance-related health services visit data were analyzed, based on self-reported drinking or drug use within six hours prior to an injury or illness event, from three National Alcohol Surveys (1995, 2000, 2005). A 2%, but non-significant, increase was observed in alcohol-related ED visits from 1995 to 2005, while a significant linear trend was found for drug-related ED visits (from 0.6% in 1995 to 3.7% in 2005). Year of survey (2000 vs. 1995) was also positively predictive of drug-related ED visits, independent of gender, age, ethnicity and health insurance coverage. These data suggest that drug-related ED visits are continuing to increase, although the increase has not been as substantial between 2000 and 2005, as that which was observed between 1995 and 2000.

Although no significant trend was found in causal attribution of injury or illness to drinking, nearly a third of respondents who reported drinking prior to the event among those obtaining ED treatment or no treatment in the 2005 survey believed their drinking was related to the event.

The prevalence of alcohol- and drug-related ED and primary care visits in the general population samples was small, and may be an underestimate, since the data are based on just one injury or illness event per respondent, and the same individual may have accounted for several alcohol- or drug-related ED or primary care visits during the one-year period. Studies of alcohol use in probability samples of ED patients in the U.S. have found a range for self-reported alcohol consumption of 8% to 35% prior to an injury event, and 7% to 16% prior to a non-injury event, and these rates are significantly higher than those based on BAC testing for both injured and non-injured patients in the same ED samples [1,15].

While the increase in reported drug-related events between the 1995 and 2000 surveys could have resulted from a change in the mode of survey (face-to-face in 1995 to RDD in 2000), the effect of mode of administration of the NASs has been examined, as noted in the methods section [12,13], with no significant differences found. Additionally, increases in drug-related events are also seen between the 2000 and 2005 surveys, both of which used RDD.

Data reported here, then, suggest that drug-related ED visits have significantly increased over the last decade while alcohol-related ED visits may also be on the rise, and that the ED continues

to be an important site for initiating screening, brief intervention and referral to treatment for both alcohol- and drug-related problems. These findings also suggest that Healthy People 2010 objectives [16] which call for a reduction in alcohol and drug-related ED visits may not be reached.

Acknowledgments

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References

1. Cherpitel CJ. Alcohol and injuries: a review of international emergency room studies since 1995. Drug and Alcohol Review 2007;26:201–214. [PubMed: 17364856]
2. Vitale S, van de Mheen D. Illicit drug use and injuries: a review of emergency room studies. Drug & Alcohol Dependence 2006;82:1–9. [PubMed: 16183213]
3. National Institute on Drug Abuse. Annual Emergency Room Data 1992: Data from the Drug Abuse Warning Network. Rockville, MD: Substance Abuse and Mental Health Services Administration; 1994. Series 1, no. 12-A. DHHS Publication No. (SMA) 94–2080
4. Brookoff D, Campbell EA, Shaw LM. The underreporting of cocaine-related trauma: drug abuse warning network reports vs. hospital toxicology tests. American Journal of Public Health 1993;83(3): 369–371. [PubMed: 8438974]
5. Domingo-Salvany A, et al. The underreportring of drug-related episodes in a Barcelona emergency room. American Journal of Public Health 1994;84(8):1340. [PubMed: 8059903]
6. Nelson, CR.; Stussman, BJ. Advance Data from Vital and Health Statistics. Series 16. Vol. 26. National Center for Health Statistics; Hyattsville, MD: 1995. Alcohol- and drug-related visits to hospital emergency departments: 1992 National Hospital Ambulatory Medical Care Survey.
7. Soderstrom CA, Crowley RA. A national alcohol and trauma center survey: missed opportunities, failures of responsibilities. Archives of Surgery 1987;122:1067–1071. [PubMed: 3619621]
8. Soderstrom CA, Dailey JT, Kerns TJ. Alcohol and other drugs: An assessment of testing and clinical practices in U.S. trauma centers. Journal of Trauma 1994;36(1):68–73. [PubMed: 8295251]
9. Chezem L. Legal barriers to alcohol screening in Emergency Departments and Trauma Centers. Alcohol Research and Health 20042005;28(2):73–77. [PubMed: 19006994]
10. Cherpitel CJ. Trends in alcohol- and drug-related ER and primary care visits, 1995–2000: Are Healthy People 2000 objectives met? The American Journal on Addictions 2005;14(3):281–290. [PubMed: 16019978]
11. Frey, J. Survey Research by Telephone. Newbury Park, CA: SAGE Publications, Inc; 1989.
12. Midanik, LT.; Rogers, JD.; Greenfield, TK. In: Cynamon, ML.; Kulka, RA., editors. Mode differences in reports of alcohol consumption and alcohol-related harm; Seventh Conference on Health Survey Research Methods; Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention; 2001. p. 129-133.[DHHS Publication No. (PHS) 01–1013]
13. Midanik LT, Greenfield TK. Telephone versus in-person interviews for alcohol use: results of the Year 2000 National Alcohol Survey. Drug & Alcohol Dependence 2003;72(3):209–214. [PubMed: 14643937]
14. Stata Corp. Stata Statistical Software: Release 7.0. Stata Corporation; College Station, TX: 2001.
15. Cherpitel CJ. Alcohol and injuries: A review of international emergency room studies. Addiction 1993;88:923–937. [PubMed: 8358264]
16. U.S. Department of Health and Human Services. Healthy people 2010: the cornerstone for prevention. U.S. Department of Health and Human Services; Rockville, MD: 2005.

Table 1

Substance Use-Related Injury or Illness by Type of Treatment and Year of Survey (in percent)

	Alcohol-related			Drug-related			Alcohol-caused		
	1995	**2000**	**2005**	**1995**	**2000**	**2005**	**1995**	**2000**	**2005**
ED	5.0	5.5	7.0	0.6	2.7	3.7**	39.9	25.4	28.1
PC	4.7	4.3	5.3	1.4	2.7	2.5	3.5	18.7	14.9
Any TX	5.0	4.7	6.0	1.3	2.7	2.8**	13.4	21.1	18.9
No TX	6.8	4.2	7.0	1.4	3.8	3.7	16.5	45.9	27.9

** p<.01, test of linear by linear association

Table 2

Odds Ratios for Demographic Characteristics and Year of Survey on a Substance Use-Related Event by Treatment Type

	ED (n=1,834)		PC (n=5,061)		Any TX (n=6,601)		No TX (n=1,199)	
	Alcohol-related (n=116)	Drug-related (n=53)	Alcohol-related (n=216)	Drug-related (n=128)	Alcohol-related (n=330)	Drug-related (n=173)	Alcohol-related (n=76)	Drug-related (n=36)
Male	1.53	1.36	2.06***	.72	1.84***	.76	.84	1.53
Ethnicity								
Hispanic vs whites	1.15	.39	.73	.62	.77	.61	1.17	1.05
Black vs whites	1.16	1.79	.75	.99	.91	1.21	.95	1.92
Age	.97***	.98	.99	.97**	.98***	.98***	.98	.95*
Health insurance	.93	1.01	.98	.57	.91	.73	1.50	.73
Year of survey								
1995 vs 2000	.89	.18***	1.14	.54	1.07	.46†	1.65	.38†
2005 vs 2000	1.34	1.28	1.31	1.05	1.34†	1.09	1.74†	1.07

† p<.10,

* p<.05,

** p<.01,

*** p<.001