Original Research

Sexual risk-taking among at-risk alcohol and drug users presenting to emergency departments

Rebecca Howell[1] and J. Aaron Johnson[2]

[1]Master of Psychology Program, Augusta University, Augusta GA and [2]Institute of Public and Preventive Health, Augusta University, Augusta, GA

Corresponding Author: J. Aaron Johnson • 1120 15th Street, CJ2300, Augusta University, Augusta, GA 30912 • 706-721-4649 • aaron.johnson@augusta.edu

ABSTRACT

Background: Alcohol use is linked to increased sexual risk-taking, including unprotected sexual contacts, and illegal drug use is associated with an increased likelihood of sexual risk-taking and at-risk alcohol use. Risky sexual behavior is co-morbid with anxiety, depression, and mood disorders. The purpose this study was to identify factors associated with sexual risk-taking among adult, at-risk alcohol or drug users presenting to emergency departments (EDs).

Methods: Data were derived from self-report surveys conducted with a random sample of ED patients screening positive for at-risk alcohol or drug use. As part of an alcohol and drug assessment completed by a health education specialist, patients were asked questions about their sexual behaviors. If warranted, patients also received a brief intervention addressing their alcohol and/or drug use. A negative binomial regression was conducted to identify risk factors associated with sexual risk-taking, defined here as unprotected sexual contacts.

Results: Six of nine factors included in the model were statistically significant. White race was associated with more unprotected sexual contacts relative to non-whites. Females had fewer unprotected sexual contacts relative to males. Both the frequency of drinking days and illegal drug use days in the last 30 days were associated with unprotected sexual contacts. As patient age increased, the number of unprotected sexual contacts decreased. Mental health problems, as measured by the Global Assessment of Individual Needs (GAIN) Internalizing subscale, were associated with more unprotected sexual contacts.

Conclusions: Gender, race, age, frequency of drug and alcohol use, and mental health problems are risk factors associated with unprotected sexual contacts among at-risk alcohol users. In the ED, those administering brief interventions for unhealthy alcohol and drug use may consider including safe sex education and/or providing patients with preventive measures for sexually transmitted infections, particularly to those whose assessments indicate higher frequencies of alcohol and drug use or possible mental health problems.

Key Words: emergency department, safe sex, at-risk alcohol use, drug use, mental health

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INTRODUCTION

Alcohol use is associated with increased sexual risk-taking practices, including unprotected sexual contacts, and with contraction of HIV and other sexually transmitted infections (STIs) (Trillo et al., 2013). Illegal drug use co-occurs with alcohol use and increases the likelihood of risky sexual behaviors (Hedden et al., 2010). In addition to its relationship with substance use, a high frequency of risky sexual behaviors is co-morbid with mental health conditions, including anxiety, depression and mood disorders (Långström et al., 2006).

Screening, Brief Intervention, and Referral to Treatment (SBIRT) for alcohol and drug use is an effective and evidence-based protocol that has been implemented in healthcare settings, including emergency departments (EDs). SBIRT identifies patients by use of systematic screening and, for those identified as unhealthy users of alcohol or drugs, delivers an appropriate level of service, including a brief intervention (BI) and, if needed, a referral to an addiction treatment program (Babor et al., 2007).

Almost 1 in 4 patients presenting to EDs screen positive for at-risk alcohol and/or drug use, making EDs appropriate settings for implementation of SBIRT (Johnson et al., 2013). Given the high comorbidity between alcohol, drug use, and sexual risk-taking (defined here as unprotected sexual contacts), integrating information on safe sex practices into BIs delivered in the ED could address another significant public health concern. Given the time pressures in most EDs, addressing safe sex practices with all patients screening positive for at-risk alcohol and drug use may be too burdensome to implement. Instead, targeting these interventions to the highest risk groups would be more efficient, and, potentially, more effective. The purpose of this study was to identify factors associated with unprotected sexual contacts among adult at-risk alcohol and drug users presenting to the ED.

METHODS

Institutional Review Board Approval

This study was approved by institutional review boards at Mercer University, Georgia State University, and Grady Health Systems.

Participants

Participants (N=508) were recruited from May 2009 to August 2013 from two urban EDs in Georgia. As part of a federally funded ED-SBIRT implementation effort, patients aged 18 or older entering the EDs were screened by triage nurses using three single-item questions. These questions, integrated into the facilities' electronic triage system, were designed to detect unhealthy alcohol use, illicit drug use, and/or prescription drug misuse.

Patients were considered to screen positive if they reported one or more binge drinking episodes in the past 12 months. Binge drinking was based in the National Institute of Alcohol Abuse and Alcoholism definition of four or more standard drinks per day for women and five or more per day for men (NIAAA, 2007). Patients reporting, for the past year, illicit drug use or use of prescription drugs in a way other than as prescribed were also deemed to screen positive (Smith et al., 2010). Patients screening positive were flagged in the ED's electronic tracking system, indicating a need for a more comprehensive assessment and delivery of appropriate intervention and/or referral services by SBIRT specialists, who provide continuous ED coverage.

The participants were a 10% random sample of patients screening positive. Randomization was accomplished by selecting patients for whom the last two digits of their Social Security number were between 30 and 39.

Assessments/Survey Instruments

In addition to SBIRT services, sampled patients were asked to complete a survey containing standardized and validated assessment measures, including the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), the Global Assessment of Individual Needs – Short Screener (GAIN-SS), and selected items from the Behavioral Risk Factor Surveillance System (BRFSS). Sexual risk-taking, the dependent variable, was operationalized as the number of unprotected sexual contacts in the past 30 days. This could include any vaginal, anal, or oral contacts between heterosexuals or homosexuals without the use of some form of STI prevention. Patients reporting no unprotected sexual contacts were included in the model.

ASSIST, a validated questionnaire developed and tested by the World Health Organization, includes 8 screening questions for each substance, including tobacco, alcohol, and several specific drugs. For each substance used, scores may range from 0 to 39. The level of SBIRT service is determined by the ASSIST score, with cutoff points based on WHO recommendations (Humeniuk et al., 2010). BIs were delivered to those with ASSIST scores of 4 and higher. Those with scores of 4 to 19, considered at moderate risk, received a BI only; those with scores of 20 to 26 received a BI and referral to brief treatment (BT) (up to 12 sessions delivered by an in-house behavioral health specialist); and those with scores 27 and above were considered possibly dependent and received a BI and referral to a specialty addiction treatment program (RT). For this study, only

patients eligible for a BI or higher service (ASSIST score 4 or higher) were included. The model uses these cutoff scores as a proxy for patient level of severity, with BI serving as the excluded category.

The Global Appraisal of Individual Needs – Short Screener (GAIN-SS) is designed as a brief means of identifying individuals with one or more behavioral health disorders in the general population (Dennis et al., 2006). The GAIN-SS includes four subscales for internalizing or externalizing psychiatric disorders, substance use disorders, and crime/violence problems. Because internalizing disorders (e.g., depression and mood disorders) are associated with both substance use and sexual risk-taking (Långström et al., 2006), only the internalizing disorders subscale was included in the analysis.

Statistical Analysis

The dependent variable, number of unprotected sexual contacts, is a count variable and contains a large number of 0 responses (patients reporting no unprotected sexual contacts). As such, negative binomial regression is the most appropriate means of analysis. The model includes 9 possible factors hypothesized to be associated with unprotected sexual contacts in patients screening positive for at-risk alcohol or drug use. Analyses were conducted using SPSS version 21.0 (IBM Corporation, Armonk, NY).

RESULTS

As shown in Table 1, participants were primarily African American and male with a mean age just under 40. On average, participants reported using alcohol about 11 days in the past 30 days and one or more illicit drugs about 9 days in the past 30 days. Patients reported an average of just over 5 unprotected sexual contacts in the past 30 days.

Table 1. Demographics

Race	
African American	369 (72.7%)
White	126 (23.1%)
Other	12 (2.2%)
Gender	
Male	398 (73.2%)
Female	146 (26.8%)
Mean Age (SD)	39.3 (13.0)
Mean # of drinking days in past 30 days (SD)	11.16 (10.6)
Mean # of drug use days in past 30 days (SD)	8.87 (12.0)
Mean # of unprotected sexual contacts (SD)	5.1 (10.6)

Results from the negative binomial regressions are shown in Table 2. The full model containing all predictors was statically significant χ^2 (9, N=508) = 93.70, $p < 0.000$. Of 8 predictors included in the model, 6 were statistically significant, including gender, race, age, drinking and drug use days, and the GAIN-SS Internalizing subscale. Although the frequency of substance use was associated with greater frequency of unprotected sexual contacts, the level of risk of substance use disorder, as measured by the ASSIST, was not associated with more unprotected sexual contacts.

Table 2. Negative binomial regressions of unprotected sexual contacts on patient demographics, substance use, and mental health

Factors	B	*p*-value (*$p < 0.05$)
Gender (female)	-0.32	0.01*
Race – African American	---	---
White	0.35	<0.001*
Other	0.10	0.75
Age	-0.02	<0.001*
ASSIST score 20-26 (BT)	0.19	0.21
ASSIST score 27+ (RT)	-0.21	0.16

Factors	B	*p*-value (*$p < 0.05$)
Number of drinking days, past 30 days	0.02	<0.001*
Number of drug use days, past 30 days	0.02	<0.001*
GAIN Internalizing Score	0.08	0.02*

Being female was associated with fewer unprotected sexual contacts compared to male, and being White was associated with higher numbers of unprotected sexual contacts compared to African American. As patient age increased, the number of unprotected sexual contacts decreased. Both the frequency of alcohol use and of drug use were associated with more unprotected sexual contacts. Finally, higher scores on the GAIN_SS Internalizing subscale were associated with more unprotected sexual contacts.

DISCUSSION

This study is among the first to look systematically at sexual risk-taking behaviors among ED patients who screen positive for at-risk alcohol or drug use. In addition to demographic factors, the frequency of alcohol and drug use and scores on an internalizing disorders subscale are associated with unprotected sexual contacts. All patients included in the study were eligible for SBIRT services (at least a BI), and the mean number of unprotected sexual contacts in the past 30 days was just over 5. These results highlight a potential opportunity for behavioral health specialists in EDs to deal with another significant public health issue, sexually transmitted infections. EDs implementing SBIRT might consider training those delivering these services to incorporate safe-sex education into their BIs, particularly among patients who are younger, or whose screening indicates higher frequencies of alcohol or drug use and/or have possible mental health problems. This type of dual-focus intervention has been tested with females in clinical trials (Floyd et al., 2007; Velasquez et al., 2010). Some implementation in community settings has also been accomplished with the Project CHOICES intervention (Velasquez et al., 2013), suggesting that such a dual focus approach is possible. Since most of those receiving SBIRT services in EDs are male, however, some modification to the CHOICES intervention would likely be needed.

This study is not without limitations. The most significant is the inability to determine the marital status of participants. As a result, some of those reporting unprotected sexual contacts may be engaged in long-term monogamous relationships in which unprotected sexual contacts may not run the risk of contracting an STI. This study was also limited to two large urban EDs in Georgia in which most patients were African American. Results may be different for EDs located in more rural areas and/or serving different populations.

CONCLUSIONS

A high percentage of patients presenting for treatment in EDs screen positive for at-risk alcohol and/or drug use. SBIRT is an effective means of addressing alcohol and drug use, but, given the association between at-risk alcohol and drug use and sexual risk-taking, a dual-focus intervention could address two public health issues in a single BI.

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References

Babor TF, McRee BG, Kassebaum PA, Grimaldi PL, Ahmed K, Bray J. Screening, Brief Intervention, and Referral to Treatment (SBIRT). Substance Abuse. 2007;28(3):7-30. doi:10.1300/J465v28n03_03.

Dennis M, Chan Y, Funk, R. Development and validation of the GAIN Short Screener (GAINSS) for psychopathology and crime/violence among adolescents and adults. The American Journal on Addictions. 2006, 15(supplement 1), 80-91. http://www.chestnut.org/LI/gain/GAIN_SS/Dennis_et_al_2006_Development_and_validation_of_the_GAIN_Short_Screener.pdf

Floyd RL, Sobell M, Velasquez MM, Ingersoll K, Nettleman M, Sobell L, Mullen PD, Ceperich S, von Sternberg K, Bolton B, Skarpness B, Nagaraja J. Preventing alcohol-exposed pregnancies: A randomized controlled trial. American Journal of Preventive Medicine. 2007, 32:1-10.

Hedden S, Martins S, Malcolm R, Floyd L, Cavanaugh C, Latimer W. Patterns of illegal drug use among an adult alcohol dependent population: Results from the National Survey on Drug Use and Health. Drug and Alcohol Dependence. 2010, 106: 119-125.

Humeniuk R, Henry-Edwards S, Ali RL, Poznyak V and Monteiro M. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST):

manual for use in primary care. Geneva, World Health Organization. 2010.

Johnson JA, Woychek A, Vaughan D, Seale JP. Screening for at-risk alcohol use and drug use in an emergency department: Integration of screening questions into electronic triage forms achieves high screening rates. Annals of Emergency Medicine. 2013. 62:262-266.

Larkin GL, Claassen CA, Emond JA, Pelletier AJ, Camargo CA. Trends in U.S. emergency department visits for mental health conditions, 1992 to 2001. Psychiatric Services. 2005, 56:671-677.

Långström N, Hanson R. High rates of sexual behavior in the general population: correlates and predictors. Archives of Sexual Behavior. 2006, 35(1): 37-52.

National Institute on Alcohol Abuse and Alcoholism. Helping Patients Who Drink Too Much: A Clinician's Guide: Updated 2005 Edition. US Department of Health and Human Services, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism; 2007.

Merchant R, Baird J, Liu T, Taylor L, Montague B, Nirenberg T. Brief intervention to increase emergency department uptake of combined rapid human immunodeficiency virus and hepatitis C screening among a drug misusing population. Academic Emergency Medicine. 2014, 21 (7): 752-767.

Patrick M, O'Malley P, Johnston L, Terry-McElrath Y, Schulenberg J. HIV/AIDS risk behaviors and substance use by young adults in the United States. Prevention Science. 2012, 13(5): 532-538.

Smith PC, Schmidt SM, Allensworth-Davies D, Saitz R. A single-question screening test for drug use in primary care. Archives of Internal Medicine, 2010;170(13):1155.

Trillo A, Merchant R, Baird J, Ladd G, Tao L, Nirenberg T. Interrelationship of alcohol misuse, HIV sexual risk and HIV screening uptake among emergency department patients. BMC Emergency Medicine, 2013, 13 (1): 1-14.

Velasquez MM, Ingersoll KS, Sobell MB, Floyd RL, Sobell LC, von Sternberg K. A dual-focus motivational intervention to reduce the risk of alcohol-exposed pregnancies. Cognitive and Behavioral Practice, 2010, 17:203-212.

Velasquez MM, von Sternberg K, Parrish DE. CHOICES: An integrated behavioral intervention to prevent alcohol-exposed pregnancies among high-risk women in community settings. Social Work in Public Health, 2013, 28:224-233.