



Trend in incidence and risk markers of student emergency department visits with alcohol intoxication

A longitudinal data linkage study



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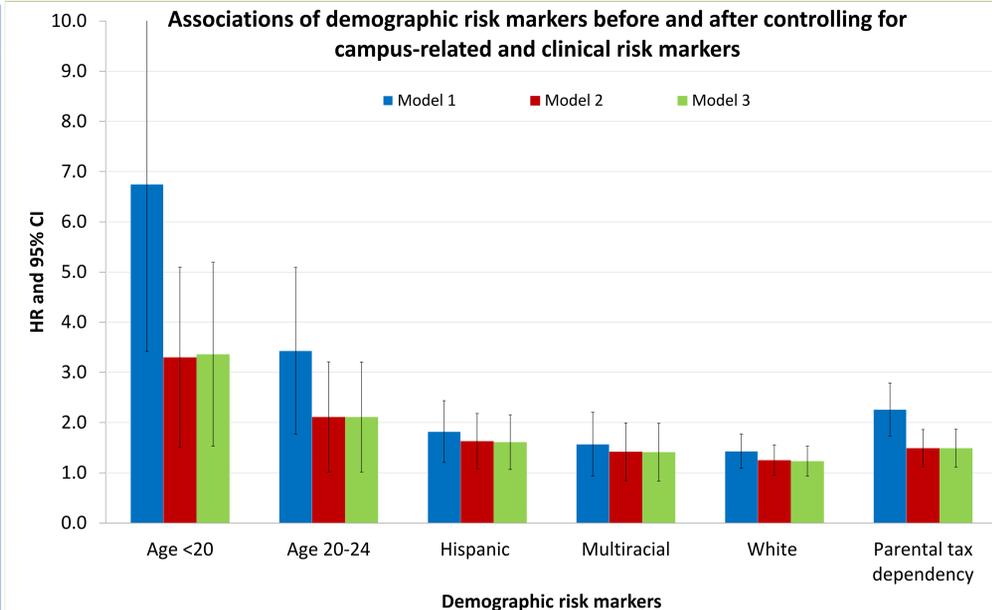
Introduction

- Alcohol misuse continues to be a significant health problem among college students with alcohol intoxication being the most severe form
- Emergency departments (EDs) are in a unique position to provide objective clinical data from physician diagnosis to evaluate the burden of alcohol intoxication
- This study aimed to evaluate the trends in incidence of student alcohol intoxication associated with university hospital emergency department (ED) visits and assess the longitudinal relationships between student socio-demographic characteristics, campus-related and psychological factors with this outcome

Characteristics of the study population

Characteristic	n (%)	Incid.	Characteristic	n (%)	Incid.
Gender			First-time enroll.		
Male	98779 (55.8)	69	No	109290 (61.7)	47
Female	78349 (44.2)	51	Yes	67838 (38.3)	80
Age			Greek life		
16-19	46559 (26.3)	129	No	155435 (87.8)	43
20-24	69045 (39.0)	52	Yes	21693 (12.2)	163
25-29	25200 (14.2)	10	Athlete		
30-50	36324 (20.5)	1	No	169458 (95.7)	59
Ethnicity			Yes	7670 (4.3)	49
Asian and HPC	15468 (8.7)	56	Tax dependency		
African American	11235 (6.3)	58	No	88083 (49.7)	15
Hispanic	8240 (4.7)	89	Yes	89045 (50.3)	95
Multiracial	4525 (2.6)	88	Alcohol use		
Non-resident	13492 (7.6)	60	No	176882 (99.9)	58
White	109859 (62.0)	37	Yes	246 (0.1)	274
Other	14309 (8.1)	47	Depression		
Academic level			No	175522 (99.1)	58
Graduate	75043 (42.4)	92	Yes	1606 (0.9)	133
Undergraduate	102085 (57.6)	9	Anxiety		
			No	175588 (98.9)	58
			Yes	2088 (1.1)	128

Association of risk markers



Data source and data analysis

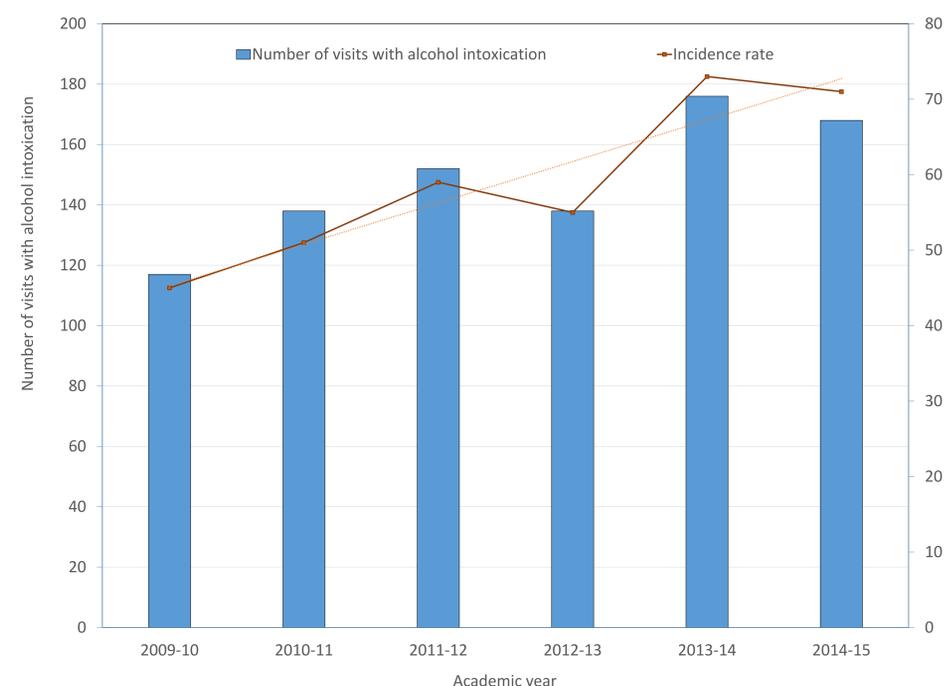
- Prospective cohort study linking student admission and primary healthcare data to subsequent ED visits in a hospital affiliated with a major U.S. public university
- ED visits with alcohol intoxication were identified using ICD-9 codes within one year following the first (index) enrollment each year
- Incidence rate per **10,000** person-years was calculated
- 3 sequential multi-variable Cox proportional hazard regression provided adjusted hazard ratios (HR) (95 % CI) for the association between student characteristics and subsequent ED visits with alcohol intoxication

- HRs (95%CI) of student characteristics associated with ED visits with alcohol intoxication were: males (versus females): 1.38 (1.21-1.58); below 20 years of age (versus 25-30 years): 3.36 (1.99-5.65); Hispanic (versus Asian) students: 1.61 (1.16-2.25); parental tax dependency: 1.49 (1.16-1.91); Greek life member: 1.96 (1.69-2.26); member of an athletic team: 0.51 (0.36-0.72); undergraduate (versus graduate) students: 2.65 (1.88-3.74), and first enrollment: 1.92 (1.65-2.25).
- Past year alcohol use: HR=3.56 (1.58-8.00) or having been diagnosed with depression: HR=2.18(1.48-3.84) or anxiety: HR=2.36(1.54-3.61) were also significantly associated with higher risk.
- Adjustments for campus-related factors strongly attenuated the associations between student socio-demographic characteristics with this risky drinking outcome.

Study population and Incidence

- 177,128 students (69% males) were available for analysis
- Over 26% of students were aged 18-24 years, 39% aged 20-24, 14% aged 25-29, and 20.5% aged 30-49.
- White students accounted for 62% of the total cohort, followed by Asian and Pacific Islanders (8.7%), non-American residents (7.6%), African American (6.3%), Hispanic (4.7%), and multiracial (2.6%).
- Nearly 58% were undergraduate students and 42% were graduate students
- 12.2% affiliated with a fraternity or sorority
- 4.3% were members of a university athletic team, 38% were enrolled for the first time
- Over half were dependent on parents for tax
- Incidence rate of 59/10,000 person-years.
- The incidence increased linearly from 45/10,000 person-years in 2009-10 to 71/10,000 person-years in 2014-15 academic year (p<0.001).

Trend in incident ED visits with alcohol intoxication



Discussion and conclusion

- The study highlights that linking student administrative data with health system clinical data can be used to monitor the temporal trends in alcohol intoxication in a student population.
- Our study further advances elucidates mediating roles of campus-related factors in the risk of student alcohol intoxication requiring ED visits
- This findings stress the need for modifying campus-specific social contexts and environments that are associated with student harmful alcohol use
- Since not all students face the same risk of this clinical outcome, a focused review of associated student socio-demographic characteristics, organizational, academic, and clinical risk markers may allow for future development of a robust risk screening algorithm to identify a subset of students with higher risk trajectories, who can then be targeted through screening, enhanced counseling, and timely referral to available education and preventive services.

