Trends in incidence and risk markers of student emergency department visits with alcohol intoxication – A longitudinal data linkage study

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Six-year trend in incidence of student ED visits with alcohol intoxication

Associations of demopgrahic risk markers before and after controlling for campus-related and clinical risk markers
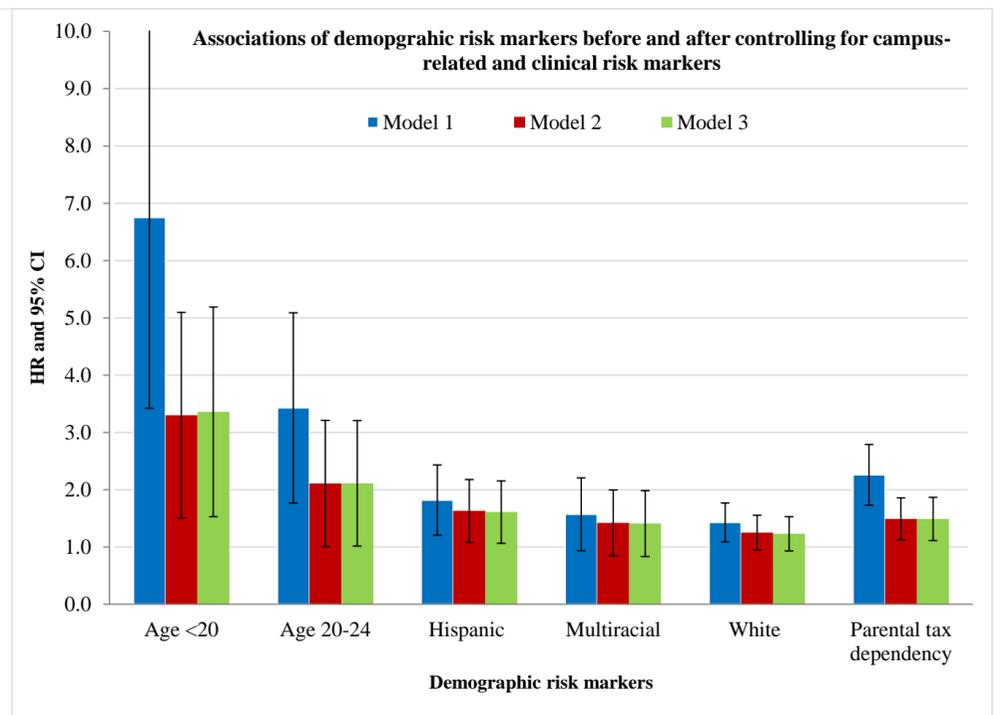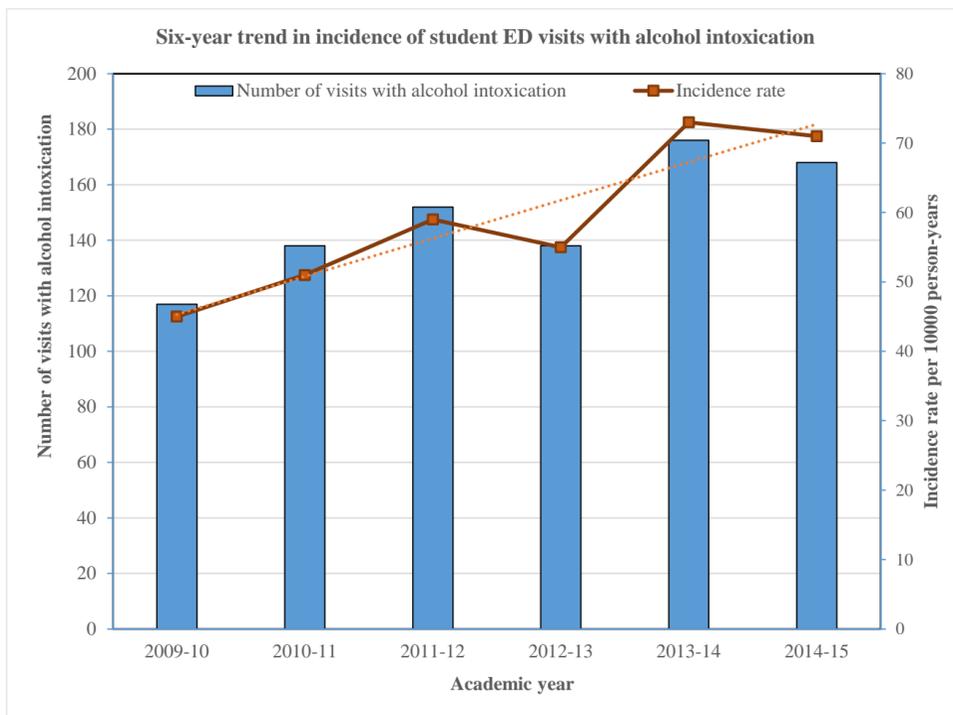
Introduction

 Alcohol abuse in the collegiate population continues to be a significant problem. 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.

Methods

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. 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.

Study population

There were 181,827 students aged 16-49 years (median = 21.7) at index enrollments during the study period. After excluding 4,599 students (2.6%) with missing data on covariates, 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, and over half were dependent on parents for tax

Key findings

There were 177,128 students aged 16-49 enrolled from 2009/10 to 2014/15 academic years, with 889 students having at least one ED visit with alcohol intoxication, resulting in an 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). HRs (95%CIs) 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.

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. 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.