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Is Psychosocial Stress Associated with Alcohol Use Among Continuation High School Students?

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ABSTRACT

Although psychosocial stress has been linked to substance use in adolescent high school populations, the link has rarely been studied among continuation or "alternative" high school students; those students removed from regular high school due to delinquency, substance abuse and other behavioral problems. We did so in a sample of 906 continuation high school students. As anticipated, alcohol use was very high in this population. To measure psychosocial stress, we modified the Adolescent Life Change Events Questionnaire (ALCEQ) by adding 18 items measuring stressors associated with neighborhoods, discrimination, and finances, using a likert response format. We found that frequency and intensity of stressful events, as measured by the modified ALCEQ, correlated with increased alcohol use even among this heavily using population. Frequency and intensity of stressful life events continued to correlate with alcohol use even after adjusting for sociodemographic variables in the multiple regression models. Overall, results identified several distinct subgroups of students who may be at higher risk for substance use. More prevention programs are needed for this high-risk group of students.

INTRODUCTION

Few studies have examined the health and health risks of the 280,000 students in the U.S. who attend continuation, or alternative, high schools. Of particular concern are the high substance use rates among these students. Studies have shown substantially higher prevalence of alcohol, tobacco, and other drug (ATOD) use among students in continuation high schools compared with students in regular high schools. (Grunbaum and Basen-Engquist 1993; Centers for Disease Control and Prevention 1994; Sussman, Stacy et al. 1995)

The reasons for the high rates of substance use in continuation high school students have not been delineated; however, integrative theories in adolescent substance use acknowledge that experimental substance use in adolescents is influenced by a multitude of factors, such as, psychosocial stress at the individual level (e.g., academic failures, parenthood, problems with the judicial system), family level (e.g., family mobility, parent sickness or divorce) and/or neighborhood level (e.g., neighborhood violence, high availability of alcohol). (Petraitis, Flay et al. 1995)

While past studies have laid the foundation for the stress/substance use hypothesis, only one (Sussman et al. 2000) has studied this relationship among continuation high schools students.

OBJECTIVES

We conducted a cross-sectional survey to: 1) determine the prevalence of psychosocial stress (at the individual, family and neighborhood levels) and substance use, and 2) determine the relationship between psychosocial stress and alcohol use.

We hypothesized that psychosocial stress (i.e., the number of negative life events, perceived intensity of negative life events and a weighted total stress score) would be positively associated with alcohol use, after adjustment for gender, age, race/ethnicity, and SES. We also hypothesized that the relationship would be stronger for girls than for boys, as indicated by a significant stress by gender interaction.

METHOD

Participants

N = 906 students from nine continuation high schools in the San Francisco/San Jose area of Northern California.

Measures

- Self-report questionnaire containing multiple choice questions assessing sociodemographic information, stress measures and alcohol use.
- Adapted Adolescent Life Change Event Questionnaire (comprised of the Intensity, Frequency and Total Stress scores)
- Perceived Stress Scale (PSS) (Cohen, 1983)

Procedure

- Students were surveyed in classrooms by trained research staff.
- Survey was administered under anonymous conditions, and no names of students were collected.
- A multiple regression analysis was conducted to evaluate the association between stress (the adapted ALCEQ intensity, frequency and total stress and the PSS scores) and alcohol.

RESULTS

Table 1. Sociodemographic Characteristics of Continuation High School Students by Gender

Characteristics	Males (n = 506)	Females (n = 400)	Total (n = 906)
Age (Mean, SD)	16.8 ± .89	16.7 ± .87	16.7 ± .88
Ethnic/Racial background: (%)			
Asian	9.3	8.3	8.8
Black	5.8	4.6	5.3
Hispanic	39.6	47.2	43.0
Mixed heritage	12.6	18.2	15.1
Other ethnic/racial group	1.6	1.1	1.4
White	30.9	20.8	26.4
Country of birth: (%)			
United States	83.2	87.1	84.9
Mexico, Central or South America	9.7	8.0	9.0
Other country	7.1	4.9	6.1
Primary language spoken at home; English (%)	62.6	56.8	60.0
Student usually lived with: (%)			
Both parents	47.3	41.7	44.8
One parent (mother or father)	41.7	44.0	42.7
Other person, relative or alone	11.1	14.3	12.6
Number of people living in home: (Mean, SD)	4.7 ± 2.1	5.2 ± 2.4	4.9 ± 2.24
Father's education: (%)			
Less than high school	21.2	28.4	24.4
High school graduate	21.8	20.5	21.2
Some college or job training	15.9	18.7	17.1
2 or 4 year college	20.2	11.0	16.1
Don't know	20.8	21.5	21.1

Table 2. Psychosocial Stress Scores (means and SD) among Continuation High School Students by Gender

Psychosocial Stress Instruments	Males	Females	Total
Adapted ALCEQ (Mean, SD)			
Intensity of life events (section one)	2.6 ± 0.8	3.1 ± 0.7	2.8 ± 0.8 **
Frequency of life events (section two)	58.6 ± 32.1	64.1 ± 31.3	61.1 ± 31.8 *
Total stress score	45.5 ± 16.7	54.3 ± 16.7	49.4 ± 17.3 **
PSS (Mean, SD)			
Summary stress score	28.8 ± 6.3	31.5 ± 6.9	30.0 ± 6.7 **

* = p >= .01
** = p > .001

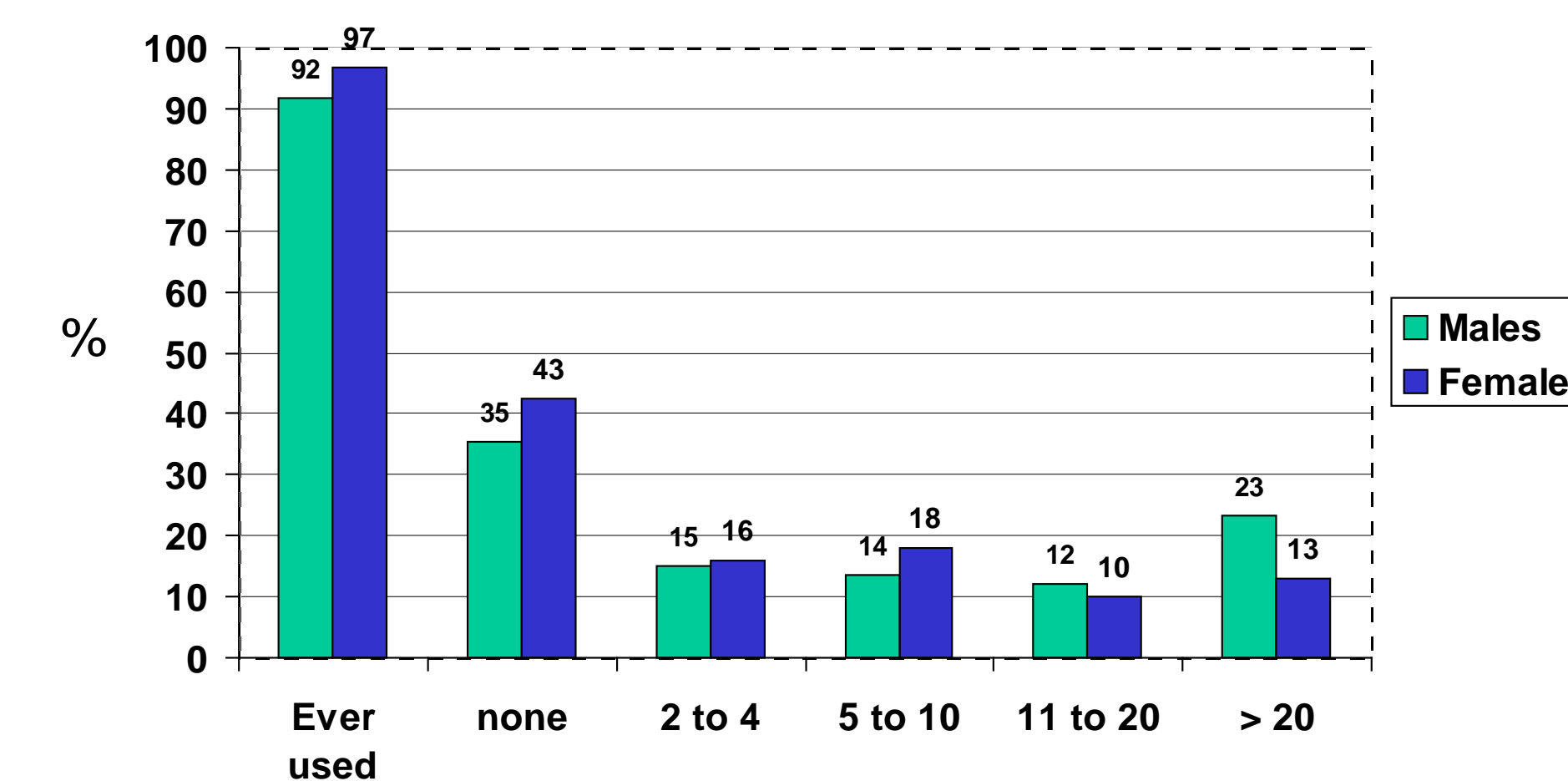


Figure 1. Alcoholic drinks consumed in last 30 days

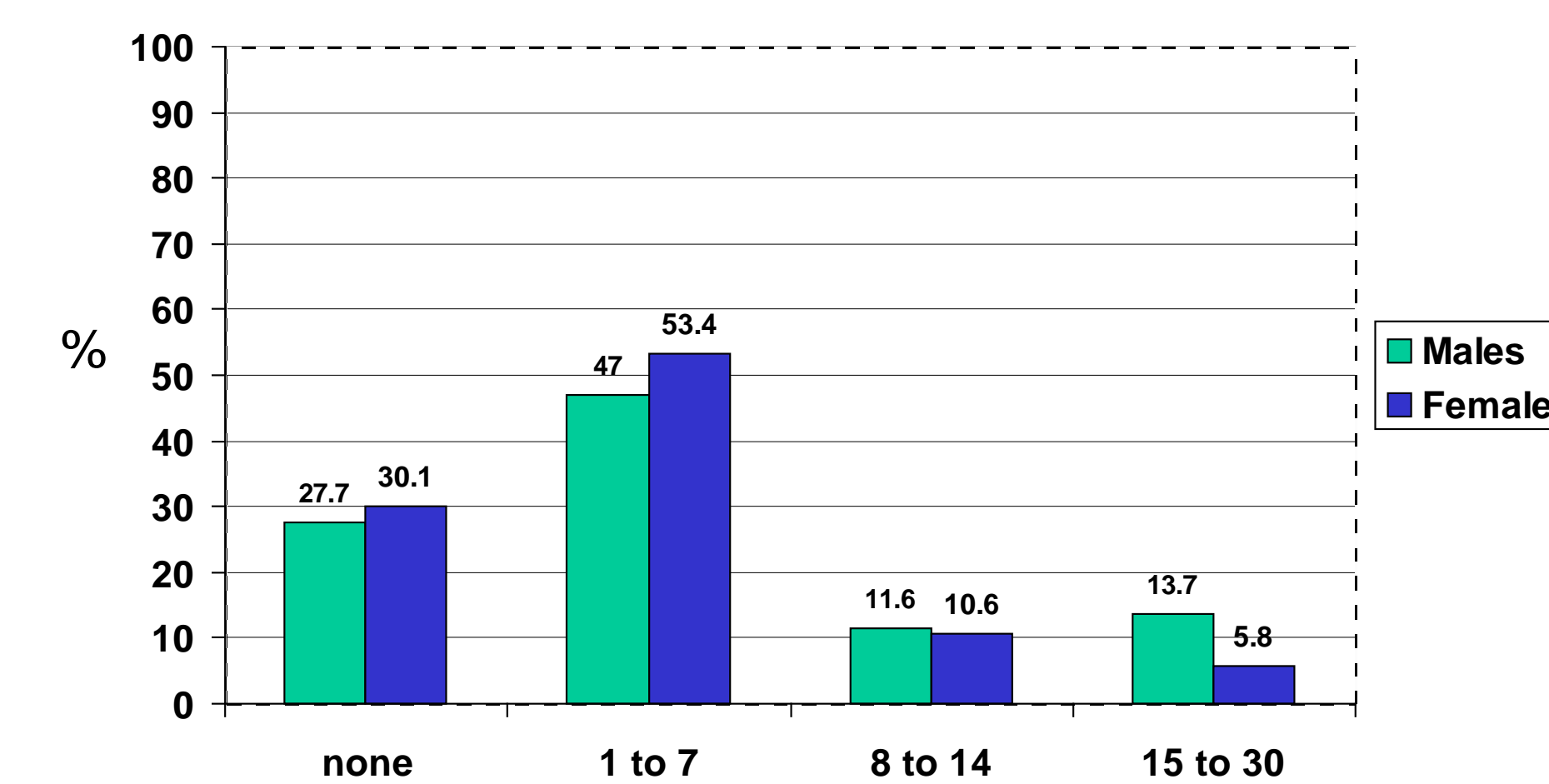


Figure 2. Number of days in last month had alcohol to drink

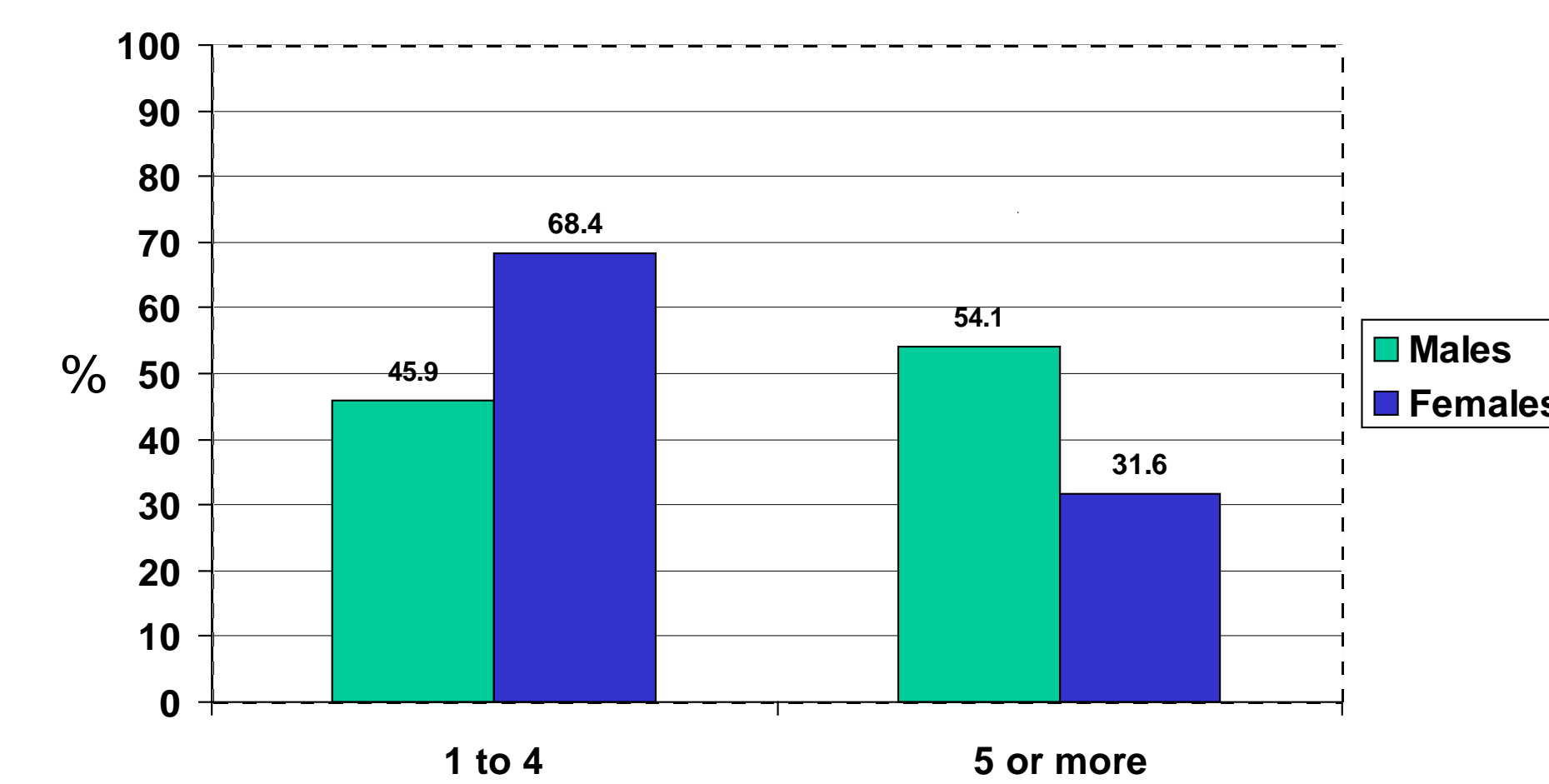


Figure 3. Among Drinkers: Number of drinks per occasion of drinking

Table 3. Summary of Regression Models for the ALCEQ and PSS Stress Measures and Alcohol

Independent Variables	Alcohol			
	β	SE	p	R ²
ALCEQ Intensity Score	-0.31	0.64	0.02*	0.03
Gender ^a	0.00	0.09	0.90	
Age	0.05	0.08	0.16	
SES ^b				
Race/ethnicity ^c				
--African American	-0.07	0.36	0.04*	
--Asian	-0.10	0.29	0.01*	
--Mixed Ethnicity	-0.01	0.24	0.83	
--Other Ethnicity	-0.01	0.65	0.79	
--Hispanic	-0.07	0.20	0.12	
Intensity Score	-0.25	0.30	0.02*	
Intensity Score X Gender	0.35	0.20	0.06	
ALCEQ Frequency Score	β	SE	p	R ²
Gender ^a	-0.03	0.36	0.74	0.07
Age	0.02	0.08	0.65	
SES ^b	0.04	0.08	0.23	
Race/ethnicity ^c				
--African American	-0.08	0.36	0.03*	
--Asian	-0.10	0.29	0.01*	
--Mixed Ethnicity	-0.02	0.24	0.61	
--Other Ethnicity	-0.01	0.64	0.85	
--Hispanic	-0.08	0.19	0.06	
Frequency Score	0.28	0.01	0.01*	
Frequency Score X Gender	-0.09	0.01	0.47	
ALCEQ Total Stress Score	β	SE	p	R ²
Gender ^a	-0.13	0.30	0.05*	0.04
Age	-0.01	0.09	0.87	
SES ^b	0.05	0.08	0.21	
Race/ethnicity ^c				
--African American	-0.08	0.36	0.03*	
--Asian	-0.11	0.29	0.01**	
--Mixed Ethnicity	-0.02	0.24	0.65	
--Other Ethnicity	-0.01	0.65	0.73	
--Hispanic	-0.08	0.19	0.08	
Total Stress Score	0.07	0.00	0.56	
Total Stress Score X Gender	0.05	0.00	0.72	
PSS Summary Score	β	SE	p	R ²
Gender ^a	-0.06	0.71	0.69	0.03
Age	-0.01	0.09	0.79	
SES ^b	0.05	0.08	0.18	
Race/ethnicity ^c				
--African American	-0.08	0.37	0.04*	
--Asian	-0.11	0.29	0.01*	
--Mixed Ethnicity	-0.01	0.25	0.77	
--Other Ethnicity	-0.81	0.66	0.74	
--Hispanic	-0.07	0.20	0.13	
Summary Score	0.04	0.04	0.74	
Summary Score X Gender	-0.03	0.02	0.88	

a, Males = 0, Females = 1
b, Father's education
c, All ethnic/race groups are dummy coded (1 = ethnic group)
* = p < .05, ** = p <= .01,

DISCUSSION

This is the largest study to date to assess the association between psychosocial stress (including individual, family/friends, school and neighborhood stressors) and substance use in continuation high school students.

The data confirmed our general hypotheses that higher levels of psychosocial stress are associated with higher levels of alcohol use in this high-risk group of students. Additionally, of the three ALCEQ stress measures, the ALCEQ Frequency score had the strongest association with alcohol.

Our hypothesized stress by gender interaction was not supported, suggesting that substance use does not differ by level of stress and gender.

The ALCEQ stress measures were found to have a greater association with alcohol use than the PSS summary score. This suggests that stressors occurring over a 12 month period, as measured by the ALCEQ, compared to perceived stressors occurring over a 1 month period, as measured by the PSS, can provide more valuable information to be used in identifying continuation high school students who may be at risk for substance use/abuse.