

# Associations Between Alcohol and Drug Use Among Collegiate

## Young Adults: Preliminary Findings

B. Gonzalez, A. L. Paz, C.A. Keim, R.R. Avila and M. Rosselli

Department of Psychology, Florida Atlantic University; <sup>1</sup>Davie, FL; 33314



### Introduction

- The young adult population has been found to engage in heavy drinking and the use of drugs. Alcohol use, combined with drug use, can lead to a multitude of future behavioral, mental, and physical health issues.
- Reduced inhibitory processing has been found to be a potential factor for the use of illicit drugs. This can lead to the inability to inhibit behaviors, such as binge drinking (Balodis, Potenza, & Olmstead, 2010). Thus, it is important to explore the relationship between drug use, alcohol consumption, and inhibition.
- Research has found, through the use of self-report on the Barrat Impulsiveness Scale, that individuals who had higher levels of disinhibition were not only more likely to use drugs, but were also more likely to engage in binge-level drinking behaviors (Balodis et al., 2010). Therefore, this study aims to explore whether these results can be replicated utilizing experimental paradigms, thereby supporting an association between behavioral inhibition and substance use.
- It is to be noted that this study stems from a larger longitudinal pilot study in which binge drinking behavior and inhibitory processing were examined.

### Objective

- The current study aims to examine the correlates between alcohol consumption (e.g., binge drinking behaviors, defined as consuming 4 to 5 drinks within 2 hours) with licit and illicit drug use among college students.
- The study also sought to examine whether inhibitory processing assessed at baseline assessment (T1) could predict drug use obtained at follow-up assessment (T2), via linear regression analysis.

### Methods

#### Participants:

- The larger study from which this was derived consisted of 58 undergraduate students. Due to a delay in IRB approval for questions regarding licit and illicit drug use, only 37 of the original 58 were able to participate in the study.
- Participants were recruited from two undergraduate psychology courses and were provided extra credit as compensation.
- 31 females and 6 males with mean ages of 21.89 ( $SD = \pm 1.50$ ).

Table 1. Number of Drug Use Occasions Reported in Previous 4 Weeks

Drug	Frequency
MDMA	1
Ecstasy	1
Cocaine	2
Methamphetamine	-
Marijuana	7
Cigarettes	7
Electronic Cigarettes	4
Prescription Medication	-
Narcotic/Painkillers	1
Anti-Anxiety/Depressants	3
Amphetamines/Stimulants	9
"Other" prescription drugs	1
<b>Total</b>	<b>36</b>

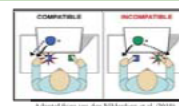
### Methods

#### Procedure:

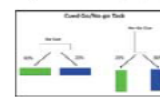
- Participants signed a consent form online via Novi Survey systems prior to first meeting. At T1 participants filled out an online questionnaire, via Novi Survey, that consisted of two sections: Personal Demographic and Alcohol History. After filling out the questionnaire, participants completed three computer tasks administered in counterbalanced order: Simon Task, Cued Go/No-Go (GNG) and Stop Signal Task (SST).
- Participants were required to fill out a brief biweekly survey cataloging alcohol consumption habits for previous two weeks.
- At T2, 28 days later, participants reported alcohol consumption habits in two different surveys presented in counterbalanced order: one pertaining to the previous two weeks and the other pertaining to the previous four weeks. The portion of participants that were used in the study were also asked to sign a consent form for the licit and illicit drug usage questions added to the questionnaire. After questionnaire completion, participants completed three computer tasks in counterbalanced order: Simon, GNG and SST.

### Experimental Paradigm

**Simon Task:** Measures the ability to inhibit interference between competing actions.



**Cued Go/No-Go Task:** Measures the ability to withdraw a pre-potent response.



**Stop Signal task:** Measures the ability to cancel a pre-potent response.



Table 2. Correlations of Alcohol Consumption (Biweekly) and Drug Use (T2)

	# Days used THC in past 4 weeks			# Days used cigarettes in past 4 weeks			# Days took prescription stimulants in past 4 weeks		
	r	df	p	r	df	p	r	df	p
# Of drinking days	0.293	35	0.083	0.442	35	0.007**	0.152	35	0.375
Non-binge days	0.465	35	0.004*	0.444	35	0.007**	0.156	35	0.365
Binge days	0.047	35	0.784	0.349	35	0.037*	0.117	35	0.496
Drunk days	0.221	35	0.196	0.346	35	0.039*	0.362	35	0.030*
Largest # of drinks	0.274	35	0.106	0.397	35	0.020*	0.215	35	0.209
Hangover days	0.073	35	0.673	0.163	35	0.341	0.628	35	0.000**

\* Significant at  $p < 0.05$  level

\*\* Significant at  $p < 0.01$  level

Table 3. Correlations for Alcohol Consumption (T2) and Drug Use (T2)

	# Days used THC in past 4 weeks			# Days used cigarettes in past 4 weeks		
	r	df	p	r	df	p
# Of drinking days	0.409	36	0.012*	0.341	36	0.039*
Largest # of drinks	0.239	36	0.155	0.343	36	0.038*
# Of binge days	0.157	36	0.354	0.332	36	0.044*

\*Significant at  $p < 0.05$  level

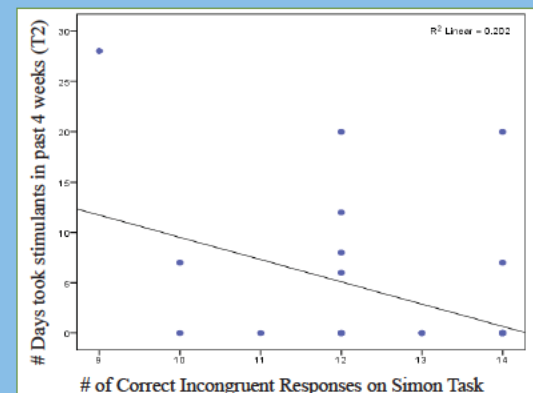


Figure 1. Number of correct incongruent responses performed on the Simon task significantly predicted the use of prescription stimulants,  $b = 0.58$ ,  $t(34) = 4.090$ ,  $p < 0.01$ .

### Discussion

- On drinking days in which binge drinking did not occur, individuals were more likely to use marijuana. Evidently, the participants who smoke marijuana maintained a preference to smoke and drink socially, instead of drinking excessively while smoking.
- Cigarette smoking was highly correlated with multiple drinking behaviors. Those who used prescription stimulants were more likely to consume alcohol that resulted in drunkenness or a hangover. Further investigation into the relationship between cigarette smoking and alcohol consumption as well as prescription stimulants and alcohol consumption is warranted.
- Previous research has found individuals with long-term stimulant medication histories to contain increased activation in the right inferior frontal cortex and anterior cingulate cortex, two areas that are highly activated during the Simon task (Hart, Radua, Nakao, Cools, and Rubia; 2012). While only speculative, this may explain why better performance on the Simon task was associated with prescription stimulant use.
- Although the findings are compelling, future research on such topics should utilize a larger, more representative, sample to effectively apply potential findings.