

A Person-Centered Approach to Investigate Relations Among Substance User Profiles and Impulsivity

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Introduction

- Substance use is the highest among people in the early twenties, highlighting the importance of studying substance use behaviors among college students.
- Problematic drinking (e.g., binge drinking) among college students continues to be highly prevalent. For example, in 2015, 37.9% of full-time college students aged 18-22 reported binge drinking, and an estimated of 20% college students reportedly met alcohol use disorder criteria (SAMHSA, 2015).
- Cannabis use has become increasingly common among college students, with an estimated 26.2% of past-month use (Pearson, Liese, Dvorak, & MOST, 2017).
- Although lacking clear data on electronic cigarette (e-cigarettes) use among college students, national cross-sectional survey data suggests that 21.6% of young adults aged 18 to 24 reported lifetime use of e-cigarettes (Glasser et al., 2016).
- Impulsivity-like facets, positive urgency (PO), negative urgency (NU), lack of premeditation (PM), lack of planning (PL), sensation seeking (SS) are robust predictors of various substance use.
- Despite studies on college students' substance (including alcohol) use and impulsivity-like facets, few have utilized a person-centered approach to examine the potential relations between latent poly-substance use profiles or typologies, impulsivity-like facets, and problematic outcomes such as problematic drinking.

CURRENT STUDY AIMS

- Identify latent poly-substance use profiles, using a person-centered approach, based on patterns of various past-month substance use indices and examine relations between class membership, impulsivity-like facets, and problematic alcohol use.

Method

PARTICIPANTS

- 702 college students from a southwestern university
- 71.8% female, 28.2% male
- Age: $M = 19.30$, $SD = 1.74$, range: 18 to 25
- Participants completed a battery of self-report measures via an online survey

MEASURES

- Demographics
- Alcohol Use Disorder Identification Test (AUDIT; Barbor et al., 2001)
- Short UPPS-P Impulsivity Behavior Scale (Cyder, Littlefield, Coffey, & Karyadi, 2014)
- Substance Use Questions
 - Past-month freq. of alcohol, binge drinking, cannabis, cigarette, and e-cigarette use
 - Past-month amount of cigarette and alcohol use

ANALYTIC PROCEDURE

- Latent class analysis (LCA) in Mplus version 7.11 (Muthén & Muthén, 1998-2013)
- Data management and analyses conducted in SAS[®] 9.3 (SAS Institute, Cary NC, USA)
 - Predictive relations between predictors (i.e., latent classes) and impulsivity-like facets
 - Predictive relations between predictors (i.e., latent classes) and problematic drinking

Results

CLASS SOLUTION

- A three-class solution was deemed the best-fitting and most parsimonious solution after examining model fit indices (see Table 1)
- Class 1: Predominantly drinkers (PD; $n = 288$, 40.3% of the sample)
 - Low endorsement of non-alcohol use indices
- Class 2: Non-users (NO; $n = 209$, 29.77%)
 - Low endorsement of all substance use indices
- Class 3: Poly-substance users (PSU; $n = 205$, 29.20%)
 - Moderate to high endorsement of all substance use indices

Table 1. Model fit statistics of two- to seven-class models.

	Number of Classes					
	2-class	3-class	4-class	5-class	6-class	7-class
AIC	9432.193	8726.036	8580.171	8510.108	8489.613	8489.447
BIC	9547.120	9035.703	8994.579	9029.256	9113.502	9218.077
Adjusted BIC	9404.235	8819.789	8705.635	8667.282	8678.498	8710.043
Entropy	.865	.911	.916	.920	.873	.870
		2- vs. 3- class	3- vs. 4- class	4- vs. 5- class	5- vs. 6- class	6- vs. 7- class
VLMR	---	-4626.096, $p = .014$	-4295.018, $p = 1.000$	-4199.086, $p = .846$	-4143.180, $p = .761$	-4109.609, $p = .761$

Note. $N = 702$. AIC = Akaike's information criterion; BIC = Bayesian information criterion; adjusted BIC is BIC adjusted for sample size; entropy ranges from 0 to 1, with values closer to 1 indicating better fit; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio.

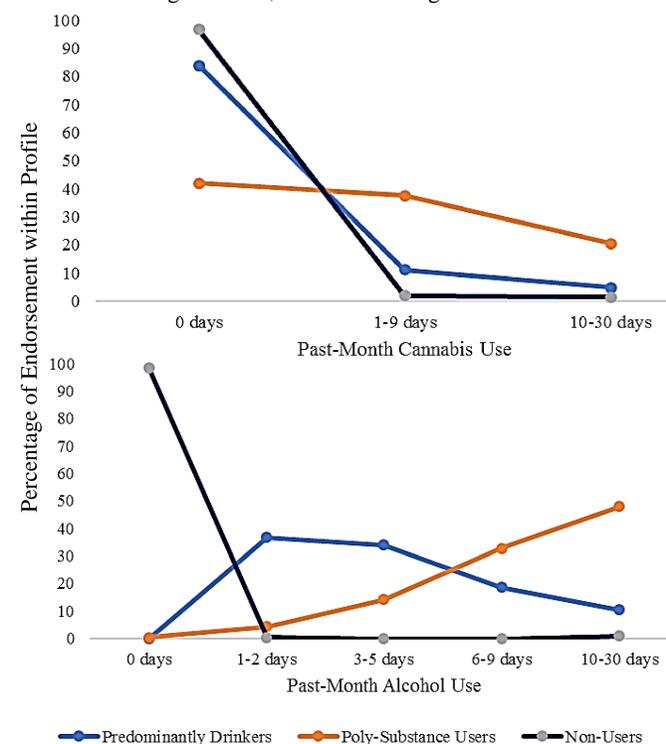


Figure 1. Endorsement of selected substance use indices by latent profiles.

Results (cont.)

- Substance use profiles differed on problematic drinking, $\chi^2(4, N = 700) = 360.26$, $p < .001$
- Moderate (AUDIT 8-15) and severe (AUDIT > 15) levels of problematic drinking: PSU > PD > NO;
- Minimal level of problematic drinking (AUDIT < 8): PSU > NO > PD.
- A one-way analysis of variance revealed that substance use profiles differed on impulsivity-like facets
 - PU: $F(2, 699) = 13.00$, $p < .001$; PSU > NO, PSU > PD;
 - NU: $F(2, 699) = 7.54$, $p < .001$; PSU > NO, PSU > PD;
 - PM: $F(2, 699) = 13.49$, $p > .001$; PSU > NO, PSU > PD, PD > NO;
 - PL: $F(2, 699) = 3.12$, $p = .045$; PSU > NO;
 - SS: $F(2, 699) = 7.00$, $p = .001$; PSU > NO, PD > NO

Discussion

- The present study utilized person-centered approach (i.e., LCA) to examine the relations between substance use profiles, impulsivity-like facets, and problematic drinking among a sample of college students. The results indicated that different types of substance users varied in levels of impulsivity-like facets and severity of problematic drinking.
- Individuals who use several substances in the past-month may be targets of clinical intervention, given the higher levels of moderate and severe levels of problematic drinking and facets of impulsivity.
- Predominantly drinkers and non-users were not consistently or significantly different on severity of problematic drinking and impulsivity-like facets (e.g., lack of premeditation, positive or negatively urgency).
- Although the present study was cross-sectional and utilized self-report measures, the results highlight the utility of person-centered approach to identify groups of substance users that may be more at risk for problematic drinking.
- Future studies should consider:
 - Collecting multi-wave, multi-method data to control for baseline substance use;
 - Replicating the substance user profiles and delineating differences between profiles;
 - Integrating both person- and variable-centered approaches (e.g., factor mixture models) to study variables of interest;
 - Examining whether there are specific demographic variables that may differentially impact results.

Selected References

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