



The etiology, consequences, development, co-occurrence, and prevention of substance use and other problem behaviors

- Developmental transitions in substance use over the life course
- Developing and evaluating brief substance use interventions for college students
- Associations between substance use and crime/violence (and other problem behaviors)

Design of the Rutgers HHDP: Age at Testing Pandina, Labouvie, White, Johnson & Bates						
Cohort (Birth Year)	Time 1	Time 2	Time 3	Time 4	Time 5	
Young (67-69)	12	15	18	25	30-31	
Middle (64-66)	15	18	21	28		
Old (61-63)	18	21	24	31		
Total N	1380	1308	1308	1257	374	

Rutgers Alcohol Problem Index (RAPI)

White & Labouvie, 1989, JSA, 50, 30-37

- Screening tool for adolescent and young adult problem drinking
- Used as an outcome in research evaluating interventions for college students
- Translated into Spanish, Portuguese, Dutch, Norwegian, and Russian (maybe French)
- More than 1400 citations
- MRAPI (RUMPI) and DRAPI

Papers Citing White & Labouvie, 1989 (RAPI)



Emerging Adulthood (Arnett, 2000)

- High school to adult status
- ► Ages 18 to 25
- Frequent change & exploration
- Developmental tasks: identity formation, mature relationships, education, and training for career
- Failure leads to drug use; drug use leads to failure

Substance Use Increases During Emerging Adulthood (Arnett, 2005; Schulenberg & Maggs, 2002)

- Changes in residence, occupational/school status, relationships (i.e., instability)
- Initiation of new roles
- New friendship networks
- Choices and opportunities
- Independence
- Less parental support, guidance, monitoring
- Identity exploration & self-focus
- Freedom from time constraints and social control

Research Issues

Excessive drinking by college students has received a lot of attention and funding.



CALL TO ACTION:

- Most forms of substance use peak during emerging adulthood for all youth.
- College attendance may be a situational risk factor for heavy drinking.
- Going to college has a protective effect on later alcohol problems in adulthood.
- Do we have enough empirical evidence to understand the experience of those who do not go to college (i.e., the "forgotten half")?

White, Labouvie, & Papdaratsakis (2005) JDI, 35, 281-305

- To examine transitions in substance use and related problems for college students and their non-college peers
- To determine whether increases were due to the college experience or due to stage in the life cycle
- Community sample (HHDP) followed prospectively more than 10 years
- Included use and use-related problems













White et al. (2005) Summary

- The transition out of high school (regardless of college status) is important for substance use
- Cigarette use is consistently higher among nonstudent males and females
- Alcohol use is not related to college status even during the college years
- Marijuana use is consistently higher among nonstudent males
- Alcohol and marijuana problems are consistently highest among nonstudent males
- Non-college males are less likely to mature out
- Non-college students an important target group
- Need to look at short-term transitions





Living by College Status Interaction for Changes in Alcohol Use Frequency





Need for Interventions

- ➤Most will mature out
- Need to reduce harms during peak using period
- Some will increase or develop problems and we cannot in advance identify which ones
- Prevent development of later abuse and dependence
- Speed up the maturation process







ADAPS BMI Study (N = 348 mandated students)

- Session 1: Complete baseline screening assessment
- Session 2: Explain study and sign consent forms. Randomly assigned to either:
 - **<u>BMI</u>** (written feedback profile is discussed in the context of brief motivational interview) or

WF (hand written feedback profile and send away)

Follow Ups: 4 months and 15 months

Short-term Results (White et al., 2006, *JSA, 67*, 309-317)

- Significant overall change (alcohol frequency, number of drinks per week, peak BAC in a typical week, heavy episodic drinking, marijuana prevalence, cigarette prevalence, alcohol-related problems, and drug-related problems)
- No significant difference between BMI and WF at 4 months post-baseline
- Conclusions and Implications:
 - WF as efficacious as in-person feedback
 - WF easier to implement, more cost-effective
 - Reserve in-person interventions for the most high-risk students

Long-term Results (White et al., 2007, ACER, 31, 1380-1391)

- Initial reductions in alcohol/drug use and related problems were followed by increases
- Long-term reductions were found in behaviors with the most potential to be disruptive and to have far-reaching negative consequences (i.e., number of drinks, peak BAC, number of problems)
- Between-group differences (BMI vs. WF)



Implications

- Sleeper effects of in-person personal feedback interventions exist (all reduce in short-term but BMI process longer).
- In-person personal feedback interventions in the context of a motivational interview may be more efficacious in the long-term than WF only interventions for mandated students.
- Future studies comparing interventions for college students should extend follow-up for longer periods of time.

The ADAPS Delay Study: 2005-2006 (White et al., 2008, <i>PAB</i> , 22, 107-116)							
Wave 1 Wave 2 Wave 3							
Baseline 2 mo. post 7 mo. po							
Immed	O ₁	X ₁	O ₂	X ₂	O ₃		
Delay	Delay O1 O2 X1X2 O3						
230 mandated students							

ringir non or			
119 - Delay	ved 111 -	Immediate	feedback

No group differences at baseline in their alcohol and other substance use







Implications

- No differences at 2-mo. between those who received and did not receive feedback suggests that reductions may be related to the incident itself, being mandated, the assessment, or some combination of these factors.
- For both groups, reductions in alcohol use (not HED) & problems continued between the 2- and 7-month assessments suggesting that written booster sessions may be useful for mandated students.
- University policies regarding alcohol-related violations by students may be effective in changing alcohol consumption after the incident.

The Incident Analysis (Morgan et al., 2008, JSAD, 69, 286-290)

- Whether students significantly reduced their drinking between the time of the violation and the sanctioned intervention and whether sex, year-in-school, or seriousness of the incident moderated these changes
- Students from ADAPS WF interventions (N=175)
- At the baseline assessment, students reported on their alcohol use (peak BAC, drinks per week, frequency) for the 30 days prior to the incident and the 30 days prior to intervention assessment



_				
_				







Summary and Implications

- The incident (especially a serious incident) appears to contribute to reductions in drinking for mandated students.
- There were no significant moderation effects for gender and year in school.
- The extent to which mandated interventions help reduce drinking above and beyond the incident remains to be investigated.
- University policies regarding violations by students may be effective.
- Are resources spent on consistent enforcement more efficient and effective than mandating students to brief interventions?

Benefits of Researcher-Clinician Partnerships

- Clinicians learn if their interventions are working
- Clinicians learn what aspects work and perhaps get ideas to improve programs
- Researchers benefit from clinical (firsthand) expertise
- Researchers get excellent counselors to implement their interventions in real-world settings
- Research studies are often cheaper

Key Research Questions for Brief Motivational Interventions

- Inconsistent findings across studies
- Are brief alcohol interventions efficacious?
- Do positive changes in behavior targets predict greater reductions in substance use and negative consequences?
- Are there subgroups of individuals for whom different interventions are more efficacious?
- Are certain components of interventions more promising?

	Project INI			
	FIOJECTINI	EGRATE Studies		
Study	Intervention Groups	College Campus	N	Sample
1	BMI, Written Feedback (WF)	Large Public U. NE	348	Mandated
2	WF, Delayed WF	Large Public U. NE	230	Mandated
3	BMI, Alcohol Education (AE)	Large Private U. NE	225	Mandated
4	Group MI, Group Theater, AE	Large Public U. NE	682	Mandated
5	Group BMI	Mid-size Private U. SW	167	Mandated
6	Group BMI	Mid-size Private U. SW	115	Mandated
7	Peer/Professional LMC, Control (Ctrl)	Large Public U. So	576	Mandated & Volunteer
8.1	Feedback (FB), Control	Mid-size Public U. NW	1,486	Volunteer
8.2	Feedback, Control	Large Public U. NW	2,155	Volunteer
8.3	Feedback, Control	Small Public C. NW	600	Volunteer
9	AE, ASTP, BASICS, Choices, Web BASICS, Ctrl	Large Public U. NW	604	First-year volunteer
10	BASICS, Control	Large Public U. NW	348	Volunteer heavy drinker
11	Feedback, Control	Large Public U. So	383	First-year volunteer
12	Expect Chall (EC), BMI, EC + BMI, Control	Large Public U. NE	335	Volunteer heavy drinker
13	BMI, Feedback	Large Public U. So	54	Volunteer heavy drinker
14	AE, BMI, Control	Large Public U. So	84	Volunteer heavy drinker
15	Group BMI, Control	Mid-size Private U. SW	263	First-year volunteer
16	Group BMI, Control	Mid-size Private U. SW	287	First-year volunteer
17	Group BMI	Mid-size Private U. SW	120	First-vear volunteer
18	Targeted Feedback, Standard Feedback, AE	Sm Private C. NW & Sm Private C. NE & L Public U. MW	329	Athletes
19	Group-specific Feedback, Control	Mid-size Private U. SW	1,178	Sorority/frat/service
20	BASICS, Control	Large Public U. NW	928	Sorority/fraternity
21	BMI, BMI without FB, FB, Control	Mid-sized Private U. So	288	Volunteer heavy drinker
22	BMI, PBI, BMI + PBI, Control	Large Public U. NE	758	First-year volunteer

Project INTEGRATE (Mun et al., 2016, *PAB*, *29*, 34-48)

- Participant-level data from 24 individual studies of brief alcohol interventions for college students
- Main data set includes 12,630 participants (42% men; 58% first-year or incoming students) who were assessed two or more times from baseline up to 12 months and assigned to an intervention or control group

Integrated Data Analysis (IDA)

- Coined by Curran & Hussong (2009): combining individual-level data from studies
- Meta-analysis with individual participant-level data (used in medical clinical research)
- Has advantages of a pre-planned, multi-site study (larger sample, heterogeneity) at less cost
- Differs from meta-analysis with aggregate data because it uses raw data (same, new analyses) rather than averaging effect sizes across studies (not just published data)
- Better for conducting subgroup analysis

Main Outcome Study Huh et al., 2015, *ACER*, *39*, 919–931

- Purpose: 1) to evaluate the overall efficacy of BMIs, 2) to determine if efficacy differs by intervention type (i.e., individual MIs with PF, PF only, and GMI), and 3) to examine whether intervention effects are moderated by gender or baseline alcohol use or problems (N=6713 across 17 studies)
- Outcomes: drinks per week, peak drinks and alcohol problems
- Analyses: IPD meta-analysis; 2-part model (logistic for any drinking & zero-truncated over-dispersed Poisson for amount); Gaussian model for alcohol problems (IRT latent trait score). Controls: baseline drinking, gender, year, race/ethnicity & mandated

Intervention Effects Aggregated across Follow-ups 1 to 12 months Post-Baseline						
	Drinks p	er Week	Peak	Drinks	Problems	
	Logit	Count	Logit	Count		
	OR	RR	OR	RR	В	
Overall	0.79	0.96	0.82	0.98	-0.02	
Specific						
MI+PF						
	0.75	0.94	0.76	0.96	-0.06*	
PF	0.84	0.98	0.93	0.97	0.02	
GMI	0.78	0.96	0.73	0.99	-0.01	



Summary

- The efficacy of BMIs for reducing harmful drinking on college campuses is much less robust and smaller than believed (see also Carey et al., 2007)
- No significant overall effect of BMIs on likelihood of any drinking at follow-up, nor on amount of alcohol consumed per week or per peak occasion for those who drank
- No overall intervention effect on alcohol-related problems, although in-person MI with PF had a small but significant effect on reducing problems
- No evidence that overall BMI efficacy was moderated by either gender or baseline alcohol severity
- But: not random and recent innovations not included

Conclusions and Recommendations

- Need for caution when implementing BMIs on college campuses, particularly when adapting the original, 2-session, in-person BASICS to PFIs or GMIs
- Reliance on altered interventions, which have reported small and typically only short-term effects, may have posed a barrier to researchers and clinicians developing better interventions
- Prevention research would benefit from greater agreement on key outcomes and more attention to mediators and moderators
- Attention needed to understanding failures as well as successes and to developing a new generation of programs

Secondary Effects of Alcohol Interventions on Marijuana Use White et al., 2015, JSAD, 76, 367-377

- No short-term or long-term effects of alcohol interventions on marijuana use
- Those who reduced their alcohol use also reduced their marijuana us
- If we can develop effective interventions for alcohol, then we may reduce marijuana use
- Marijuana-specific interventions may be needed

Complement vs. Substitute?

- Substitute: Greater availability & lower monetary costs of marijuana so some individuals may substitute marijuana for alcohol. If marijuana substitutes for alcohol, then great reduction in alcohol-related individual and societal costs
- Complement: Plasma THC levels increase if alcohol is consumed simultaneously so greater impairment and enjoyment of marijuana. If marijuana is a complement for alcohol and if alcohol use increases, then more problems
- Mixed results: depends on policy and implementation, alcohol and marijuana outcomes assessed, and characteristics of the user

3CAM Study Aims (Jackson & White)

- Aim 1: To compare occasions of SAM use to occasions of alcohol and marijuana use alone, in terms of prevalence, frequency, patterning, mode/type of use, and use-related consequences
- Aim 2: To examine within- and between-individual proximal and distal predictors of SAM use and examine the moderating effects of motivations and contexts on patterns of SAM use, occasions of SAM use, and negative consequences
- Secondary Aim: To determine if the motivational and contextual influences on SAM use generalize across sites varying in marijuana legal status

A M

C A M

3CAM Study Design

- Screening survey: 24,000 students across 3 universities (UW, URI, and RU)
- Phase I: Online survey (45 min.) of 1,390 students who used both alcohol and marijuana in the last year across 3 universities, October 2017 and January 2018
- Phase II: 4 weeks of 5 daily surveys (1-2 min.) on a phone app fall 2017 and winter 2018; 343 at least monthly SAM users across 3 universities

















In what form was the marijuana you used since 06:15 AM today? (select all that



What **method** did you use to consume the dry leaf marijuana? (select all that apply)









C What motivated you to drink and use marijuana since 06:15 AM today? (select all that apply)





Morning Survey

- Types and amounts of alcohol
- Forms, methods, and amounts of marijuana products
- Consequences
- Tobacco products and other drugs

Acknowledgements

NIDA and NIAAA

- HHDP Investigators: Marsha Bates, Erich Labouvie, Valerie Johnson, Robert Pandina
- RHC Colleagues: Robert Abbott, Richard Catalano, Charles Fleming, Kevin Haggerty, Ming Jing Kim, Barbara McMorris
- ADAPS Research Team: Kataryzna Celinska, Sara Fink, Erich Labouvie, Thomas Morgan, Eun-Young Mun, Robert Pandina, Kelly Pugh, Lisa Pugh, Malina Spirito, Adam Thacker
- ADAPS Clinicians: Corey Grassl, Brian Kaye, Barbara Kachur, Lisa Laitman, Polly McLaughlin

Acknowledgements

- Project INTEGRATE Team: David C. Atkins, Nickeisha Clarke, David Huh, Yan Huo, Yang Jiao, Su-Young Kim, Mary E. Larimer, Eun-Young Mun, Anne E. Ray, & Jimmy de la Torre
- Project INTEGRATE Contributors: John S. Baer, Nancy P. Barnett, M. Dolores Cimini, William R. Corbin, Kim Fromme, Joseph W. LaBrie, Matthew P. Martens, James G. Murphy, Scott T. Walters, & Mark D. Wood
- SCAM Study: Nicole Fossos-Wong, Kerri Hayes, Kristina Jackson, Jason Kilmer, Robert LaForge, Megan Risi, Alex Sokolovsky, Lea Stewart, & Sheila Vandal

