
MODERATORS OF BRIEF MOTIVATION- ENHANCING TREATMENTS FOR ALCOHOL- POSITIVE ADOLESCENTS PRESENTING TO THE EMERGENCY DEPARTMENT

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BROWN

EMERGENCY DEPARTMENTS

- Alcohol abusing adolescents rarely recognize the need for intervention on their own, and thus are less likely to take any independent steps towards help.
- Emergency Departments (ED) provide:
 - A unique opportunity to reach adolescents, e.g., school dropouts, who are difficult to reach but are at high risk
 - An opportunity to screen and provide brief intervention and referral
 - An opportunity to capitalize on a teachable moment, i.e., the salience of an alcohol-related event may increase sense of vulnerability and make them more receptive to intervention

BACKGROUND

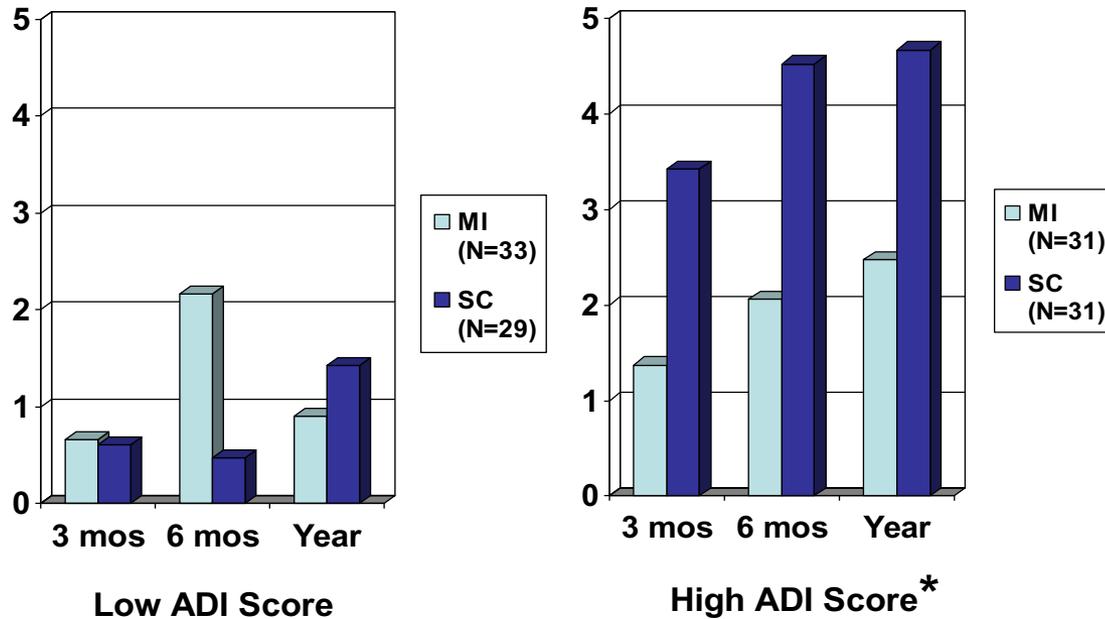


- A review of eight randomized controlled trials evaluating brief interventions incorporating motivational enhancement therapy (MET) principles among adolescents under the age of 18 in the ED found that all of the conditions – MET, brief assessment, and active control – were associated with significant reductions in drinking frequency and drinking-related consequences (Cunningham et al., 2015; Mitchell et al., 2013; Tanner-Smith et al., 2015).
- Only one of the five studies comparing MET to brief assessment found any evidence indicating that the MET condition was associated with superior drinking outcomes (Spirito et al., 2004).

**A RANDOMIZED CLINICAL TRIAL OF A BRIEF MOTIVATIONAL
INTERVENTION FOR ALCOHOL-POSITIVE ADOLESCENTS TREATED IN
AN EMERGENCY DEPARTMENT**

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High volume drinking days per month



CAN WE IMPROVE ON THESE RESULTS?

The REFRAME Study

Compare an adolescent MET to an adolescent MET plus the Family Check-Up (FCU; Dishion & Kavanagh, 2003) to determine whether addressing both adolescent intrapersonal and social/contextual developmental factors and encouraging parent participation would lead to reduced harmful drinking patterns.

Individual and Family Motivational Interventions for Alcohol-Positive Adolescents Treated in an Emergency Department

Results of a Randomized Clinical Trial

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Objective: To determine whether a brief individual motivational interview (IMI) plus a family motivational interview (Family Check-Up [FCU]) would reduce alcohol use in adolescents treated in an emergency department after an alcohol-related event more effectively than would an IMI only.

Design: Two-group randomized design with 3 follow-up time points.

Setting: An urban regional level I trauma center.

Participants: Adolescents aged 13 to 17 years (N=125) with a positive blood alcohol concentration as tested using blood, breath, or saliva.

Interventions: Either IMI or IMI plus FCU.

Main Outcome Measures: Drinking frequency (days per month), quantity (drinks per occasion), and frequency of high-volume drinking (≥ 5 drinks per occasion).

Results: Both conditions resulted in a reduction in all drinking outcomes at all follow-up points ($P < .001$ for all), with the strongest effects at 3 and 6 months. Adding the FCU to the IMI resulted in a somewhat better outcome than did the IMI only on high-volume drinking days at 3-month follow-up (14.6% vs 32.1%, $P = .048$; odds ratio, 2.76; 95% confidence interval, 0.99-7.75).

Conclusions: Motivational interventions have a positive effect on drinking outcomes in the short term after an alcohol-related emergency department visit. Adding the FCU to an IMI resulted in somewhat better effects on high-volume drinking at short-term follow-up than did an IMI only. The cost of extra sessions necessary to complete the FCU should be weighed against the potential benefit of reducing high-volume drinking when considering adding the FCU to an IMI for this population.

Trial Registration: clinicaltrials.gov Identifier: NCT00247221

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PRIMARY HEALTH CARE SETTINGS have been the site of several efforts to reduce substance use among at-risk adolescent patients.^{1,2} Studies have also targeted alcohol-abusing teenagers who present to the emergency department (ED), reasoning that the salience of an alcohol-related event may increase the adolescent's sense of vulnerability and, thereby, increase receptivity to an intervention by capitalizing on a teachable moment. Indeed, 1 study³ found that an individual motivational interview (IMI),⁴ which uses a nonconfrontational empathic therapeutic style, offers personalized feedback, and develops a discrepancy between current drinking behavior and current and long-term goals, to be effective in reducing alcohol-related problems in 18- to 19-year-old adolescents. An-

other study⁵ of 13- to 17-year-olds found a greater reduction in average number of drinking days per month and frequency of high-volume drinking in adolescents who reported a history of problematic alcohol use at baseline if they received an IMI compared with standard care.

See also page 284

One potential weakness of an IMI for adolescents is that it does not address the role of the parent(s) in managing adolescents' substance use. The Family Check-Up (FCU)⁶ is an assessment and feedback intervention, consistent with a motivational approach, designed to enhance parental recognition of child/adolescent risk behaviors and increase motivation for reducing these problem behaviors and associated risk factors. The intervention tar-

REFRAME: PROCEDURES

- Adolescents with an alcohol related event were recruited from the ED.
- Families completed a baseline assessment followed by a family observational assessment (FAsTask).
- Teens in both conditions received the MET.
- After completing the MET, families were randomly assigned to the MET or the MET + FCU condition.
- Families in the MET+ FCU condition then returned for the FCU session.
- Parents in both conditions received 5 monthly booster brochures on parenting before the 6-month follow-up visit.

REFRAME: DEMOGRAPHICS

Variable	IMI Only (n = 63)	IMI + FCU (n = 62)
Gender		
Males	30 (47.6%)	28 (45.2%)
Females	33 (52.4%)	34 (54.8%)
Race/Ethnicity		
Non-Hispanic/Latino White	45 (71.4)	38 (61.3%)
Hispanic/Latino	17 (27%)	17 (27%)
Reason for ED Visit		
Intoxication with injury or medical concern	18 (28.6%)	14 (22.6%)
Intoxication Only	45 (71.4%)	48 (77.4%)
Age Mean	15.48	15.42

ADOLESCENT MET CONDITION

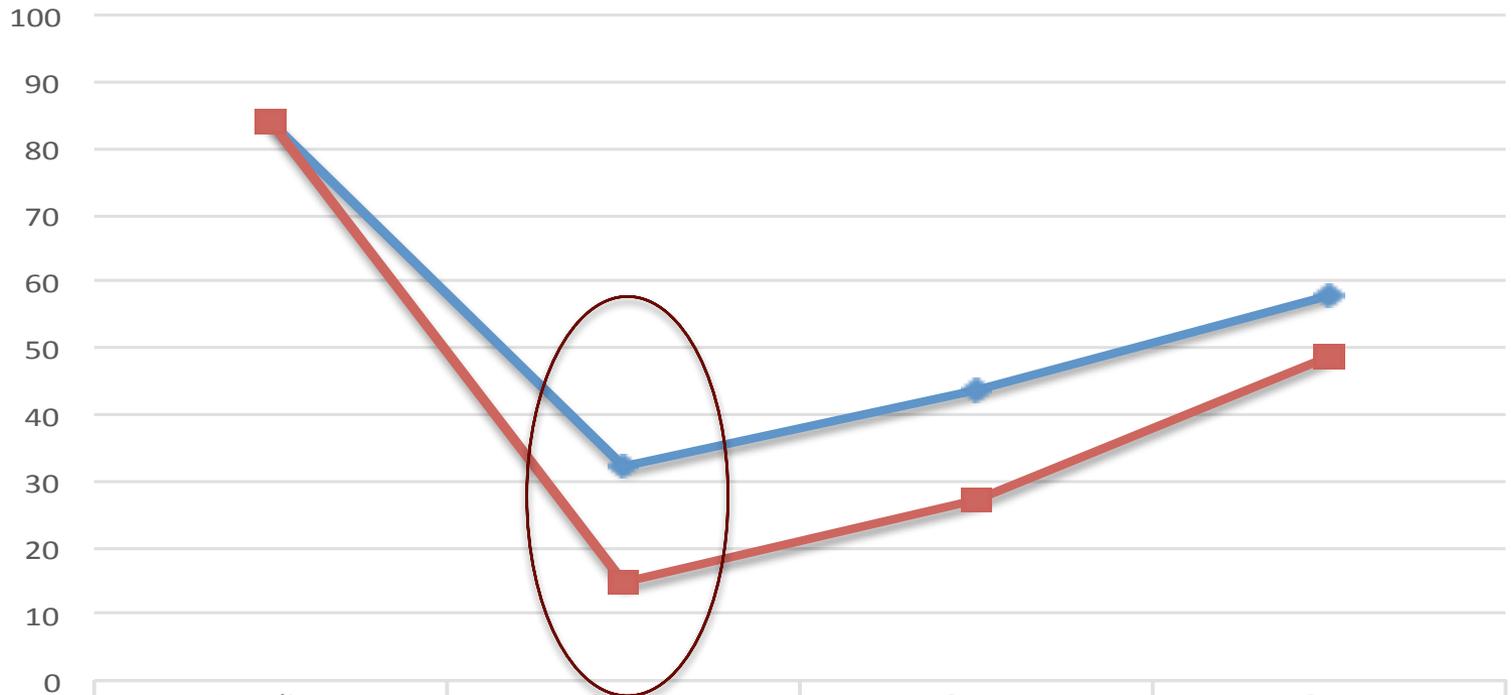
- A 45-minute session that consisted of an empathetic and non-confrontational therapeutic style, paired with:
 - exploration of the teen's motivation for drinking,
 - review of potential negative consequences,
 - personalized normative assessment feedback,
 - development of goals regarding drinking, and anticipation of barriers to accomplishing goals.
- Fidelity ratings averaged 83% and competency ratings ranged from 83.0% to 97.0% (see Spirito et al., 2011).

THE FAMILY CHECK-UP (FCU; DISHION ET AL., 2002)

- An assessment and feedback intervention, consistent with Motivational Interviewing principles.
- Designed to enhance parental recognition of youth risk behaviors and increase parental motivation to reduce these behaviors and associated risk factors.
- Targets specific parent risk and protective factors linked to adolescent alcohol and drug use such as parental substance use, parental monitoring of peer substance involvement, and the nature of the parent–teen relationship (Dishion, Nelson, & Kavanagh, 2003; Dishion et al., 2002).

REFRAME STUDY

High Volume Drinking Days



IMI
IMI & FCU

Baseline

3 Mo

6 Mo

12 Mo

84.1

32.1

43.6

58

83.9

14.6

27

48.6

THE CURRENT STUDY

- To conduct analyses of predictors and moderators of 3-month treatment outcome among the 97 alcohol-abusing adolescents in the Spirito et al. (2011) study who received one of the two MET models and were included in the acute outcome analysis.
- We focus on predictors and moderators of outcome at the 3-month assessment because:
 - a) both MET conditions had their maximum effects at 3-months;
 - b) the 3-month outcome was the only timepoint at which treatment differences were found; and
 - c) other randomized clinical trials in the ED have similarly found that brief MET interventions have their maximum effects at 3-months.

IDENTIFYING MODERATORS

- We selected moderators from three domains based on developmental theory:
 - Biological/demographic factors:
 - Biological sex
 - Age
 - Latino ethnicity
 - Psychological factors
 - Severity of Alcohol Use: Adolescent Drinking Inventory (ADI; Harrell & Wirtz, 1989)
 - Depressed Mood: Center for Epidemiologic Studies-Depression Scale (CESD; Radloff, 1977)
 - Socio-contextual factors
 - Problematic Parent Alcohol Use: Reported having stopped using alcohol because of problems with it in the past; occasionally becoming argumentative or irritable when drinking; reporting having 3+ drinks per drinking occasion.
 - Peer Substance Involvement: Peer substance use and tolerance of use (Chassin et al., 1993)

SAMPLE CHARACTERISTICS

- 40% of the adolescents screened positive for an alcohol use problem on the ADI
- 30% were in the clinical range for depressed mood on the CES-D.
- Adolescent self-reported rates of high volume drinking over the prior 90 days covered the full range:
 - 14% reported never engaging in high volume drinking
 - 60% reported engaging in high volume drinking less than once a month,
 - 26% reported engaging in high volume drinking at least monthly
- Based on parent self-report, 23% of the parents had problematic alcohol use.

PRELIMINARY ANALYSIS

- Prior to hypothesis testing:
 - We tested for pre-randomization differences across treatment conditions on the candidate variables. No group differences were found on any of these variables.
 - We conducted analyses of missing data across groups and did not find any patterns.
 - We attempted to replicate the primary outcome analyses from the original comparative trial (Spirito et al., 2011), which used the generalized estimating equation (GEE) procedure.
 - Those in the MET + FCU condition had significantly lower levels of high volume drinking than those in the MET only condition at the 3 month assessment, but not at the 6 or 12 month assessment.

PRIMARY ANALYSIS

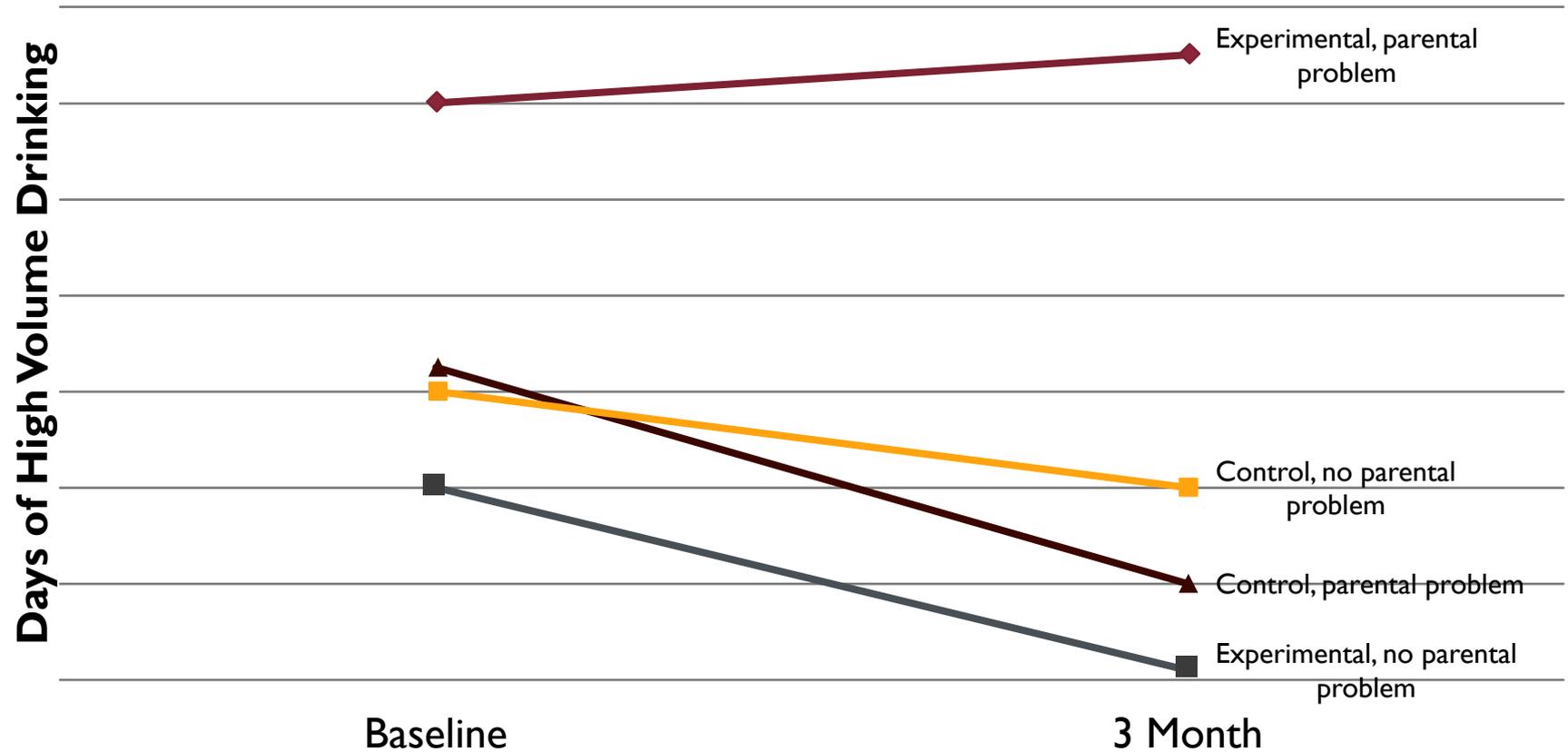
- The primary outcome for all predictor/moderator analyses was frequency of high volume drinking at 3 months, which was measured on an 8-point ordinal scale.
- All variables were centered (Kraemer & Blasey, 2004) and continuous predictors were standardized to two standard deviations (Gelman, 2008) to put coefficients on the same scale as the dichotomous variables.
- Significant interactions between potential moderators and treatment condition were probed using simple intercepts and simple slopes (Preacher, Curran, & Bauer, 2006), estimated for treatment and control groups and sub-groups with and without the given moderator.
- Given the sample size and associated power, our analyses were exploratory in nature and did not adjust for multiple comparisons.

RESULTS

Potential Moderator	Main Effect P-Value	Main Effect ES	Interaction P-Value	Interaction ES	Status
Demographics					
Gender	.48	.05	.99	.03	
Age	.04*	.07	.99	.01	Predictor
Hispanic ethnicity	.28	.03	.99	.01	
Psychological Factors					
Baseline alcohol use	.17	.08	.40	.01	
Depression	.37	.02	.38	<.01	
Social/Contextual					
Parent problematic use	.37	.01	.04*	.03	Moderator
Peer substance involvement	.44	.03	.07 ⁺	.02	Moderator (trend)

Note. ES = effect size. Effect sizes are computed using Cohen's f^2 statistic, which summarizes differences in model R^2 , and where values of .02, .15, and .35 indicate small, medium, and large effects, respectively. * $p < .05$, ⁺ $p = 0.07$.

PARENTAL PROBLEM DRINKING



DISCUSSION AND IMPLICATIONS

- Across both treatment conditions, older adolescents had higher levels of high volume drinking at 3 months than younger adolescents, even when controlling for baseline status.
 - Future work should explore the developmental appropriateness of both the adolescent MET and parent FCU.
- The current results indicate that adolescents of parents who demonstrated problematic alcohol use at baseline had the poorest response to the intervention.
 - Future work should explore if the outcomes of the FCU can be improved by taking into account the family's readiness to support all aspects of the planned intervention.
- Adolescents with higher levels of peer substance involvement *appeared* to respond better to MET + FCU than adolescent MET only.
 - Replication of these findings in a larger sample is needed to bolster confidence.

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Investigative Team

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