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The Inability of Self-Affirmations to Decrease Defensive Bias toward an Alcohol-Related Risk Message among High-Risk College Students

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Abstract

Objective—To examine the efficacy of a self-affirmation task in deterring college alcohol misuse and the importance of pre-existing beliefs in predicting subsequent behavior change.

Participants—Heavy drinking undergraduates (*N*=110) participated during the 2011–2012 academic year.

Methods—Participants were randomized to complete an affirmation or control task before reading an alcohol risk message. Alcohol-related beliefs and behaviors were assessed. Participants completed a two-week online follow-up assessing alcohol-related behaviors.

Results—Both groups reported increased perceived problem importance, but neither group displayed changes in personal risk. Follow-up assessment revealed similar, significant declines in peak consumption in both groups, with no significant between-group differences. Pre-existing beliefs accounted for 5 to 10 percent of variance in drinking outcomes.

Conclusions—An affirmation task does not seem to decrease defensive processing or alter high-risk drinking behaviors among college students and should not be utilized in lieu of more effective strategies.

Keywords

Alcohol; College students; Self-Affirmation; Risk messages; Defensive Bias

Alcohol misuse is a ubiquitous problem and a primary public health concern on college campuses.[1,2] The National Institute of Alcohol Abuse and Alcoholism recommends using cognitive-behavioral skills, norms clarification, motivational enhancement techniques, and alcohol expectancy challenges as standards of health care for prevention among college students.[3] However, messages describing drinking-related harms are widely used in social marketing and campus substance abuse center campaigns to deter high-risk drinking, despite

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research suggesting their ineffectiveness.[3] In fact, individuals at highest risk often reject such messages.[4] This 'defensive bias' has been observed in a number of health behaviors, including alcohol use.[4–6]

Self-affirmation tasks have been shown to decrease defensive bias[7–8] but seem to have inconsistent effects on subsequent drinking behavior.[9–11] Typically, these tasks involve writing about a core value. According to Self-Affirmation Theory, such tasks should bolster the self-image temporarily, thereby reducing the need to protect oneself by responding defensively.[12] However, self-affirmation research has not examined the influence of pre-existing beliefs (i.e., perceived problem importance and personal risk) on message acceptance and behavior change. Studies finding significant decreases in alcohol use following a self-affirmation task have used community and low-risk drinking samples that, on average, consumed less than 10 standard drinks per week.[7,10] It is possible that these samples have pre-existing beliefs that may be more amenable to risk messages and that higher risk samples, may be less influenced by such messages. Therefore, assessment of pre-existing beliefs may be critical in determining the efficacy of such messages among higher-risk samples.

Similarly, research in this area has focused on drinking outcomes without examining changes in behaviors that may protect individuals from alcohol-related consequences (e.g., using sober drivers). College students may increase protective behavioral strategies, rather than reducing alcohol consumption, in efforts to decrease their risks of experiencing negative consequences.[13] Therefore, additional research examining the influence of self-affirmation tasks on subsequent use of protective behavioral strategies is warranted.

The current study aimed to improve on past research by examining use of protective behavioral strategies as a function of self-affirmation task completion and determining the importance of pre-existing alcohol-related beliefs in eliciting behavior change. It was hypothesized that the self-affirmation task would increase acceptance of an alcohol-related risk message, leading to decreased alcohol consumption and increased use of protective behavioral strategies. Moreover, it was expected that pre-existing beliefs (e.g., perceived problem importance and personal risk) and completion of the self-affirmation task would be equally important in predicting behavior change. Results from this study will provide important information for public health officials coordinating campus-wide substance abuse campaigns as well as individual counselors at student substance abuse centers who may use self-affirmations based on support for the task in previous research.

Method

Measures

Alcohol-related behaviors—The Frequency Quantity Questionnaire (FQQ)[14] and one item from the Daily Drinking Questionnaire (DDQ)[15] were used to assess drinking outcomes. The four FFQ items assessed: (a) drinks consumed during heaviest drinking episode, (b) drinks consumed on a typical weekend night, (c) drinking days, and (d) occasions drinking to intoxication in the past two weeks (α = .65). Weekly drinks were calculated using the DDQ item, "Enter the number of drinks you consumed and the number

of hours spent drinking each day during the past 7 days." These items have been used as reliable measures of college student drinking in several studies (albeit with volunteer or mandated students with potential motivations to underreport),[15–18] but seem to correlate with biomarkers of alcohol use.[19]

The 15-item Protective Behavioral Strategies Scale (PBSS)[20] assessed engagement in behaviors aimed to decrease negative alcohol consequences (e.g., using a designated driver; $\alpha = .76$).[21] Higher scores (range 15 to 75) indicate greater use of protective behavioral strategies.

Beliefs and message scrutiny—Alcohol-related beliefs were assessed before (pre-existing) and after (post-message) presentation of the risk message.[6] Four questions assessed problem importance (e.g., "Is there an association between college drinking and negative consequences;" $\alpha = .79$), and one item assessed personal risk ("How at risk do you think you are for experiencing negative consequences associated with alcohol use?"). Scores range from 6 to 36 and 1 to 9, with higher scores indicating greater problem importance and personal risk, respectively. Two questions assessed message scrutiny (e.g., confidence in the link between college student drinking and negative consequences; $\alpha = .86$). Scores range from 3 to 18, with higher scores indicating less scrutiny.

Validity checks—Three attenuation and honesty questions were used. These included: (a) "You were presented a message detailing several consequences of alcohol which remained on the screen for a period of time. Did you actually read this?" (b) "Did you put at least satisfactory effort into the writing assignment you completed at the initial session?" and, (c) "Is there any reason that we SHOULD NOT use your data in our study?" Participants who acknowledged reporting invalid data were excluded.

Experimental Tasks

Values Affirmation Condition—Similar to past research,[8] participants in the affirmation condition completed Harber's (1995) Sources of Validation Scale.[22] Participants selected their most important value from an 11-item list and wrote about either a personal demonstration this value or how this value made them feel good about themselves.

No Affirmation (Control) Condition—As in previous studies,[8] participants in the control condition listed everything they had eaten or drunk in the past 48 hours.

Procedure

College students attending a large southern plains state university (2012 enrollment = 25,544), reporting at least one heavy drinking episode in the past two weeks, or consumption of at least 20 drinks in the past week, were recruited from a participant pool of students enrolled in 1000 to 3000 level psychology and speech courses during the 2011–2012 academic year. Students completed a pre-screener questionnaire containing eligibility questions. Eligible participants viewed a description of the study and, if interested, self-enrolled in a timeslot for the baseline session.

Participants completed the baseline portion of the study in a laboratory setting, with 5 to 20 students participating independently, in the same room. After providing informed consent, participants completed questionnaires and were randomly assigned via computer algorithm (50/50) to the affirmation/control conditions. All participants were then presented with "A Snapshot of Annual High-Risk College Drinking Consequences[23]" for a minimum of 90 seconds. This risk message is a national summary of alcohol-related consequences targeted for college audiences. Participants then completed the post-message beliefs questionnaires.

Two weeks later, participants were emailed a link to the follow-up measures, which they completed online from remote locations. They were debriefed and granted research credit in the appropriate course. All procedures were approved by the institution's review board.

Results

Participants

After excluding participants who reported providing invalid data ($N = 0$), and those who did not complete the follow-up ($N = 12$), 110 participants (58.2% male, 77.3% Caucasian) completed the study (52 in the control condition; 58 in the affirmation condition). Ages ranged from of 18 to 35 years (98.2%, 18 to 24 years). Participant characteristics are somewhat consistent with participants' university demographics (i.e., 78.8% White, 58.2% women) reported by the office of Registrar.

Baseline Differences

Independent samples *t*-tests revealed no significant between-group differences on any baseline measure and no gender differences in perceived personal risk. However, men reported significantly higher weekly drinks ($Men_{avg.} = 17.09$, $SD = 12.96$; $Women_{avg} = 8.50$, $SD = 5.97$; $t(108) = 4.18$, $p < .001$, $d = 0.80$), lower utilization of protective behavioral strategies ($Men_{avg.} = 47.77$, $SD = 11.12$; $Women_{avg} = 54.35$, $SD = 11.02$; $t(108) = 3.07$, $p < .01$, $d = 0.59$), and lower pre-problem importance ($Men_{avg.} = 18.30$, $SD = 6.24$; $Women_{avg} = 22.59$, $SD = 5.60$; $t(108) = 3.71$, $p < .001$, $d = 0.71$) than women at baseline. These drinking behaviors are consistent with other studies examining high risk drinkers (i.e., drinks per week range from 12–14).[24–27] Furthermore, there were no significant differences between those who completed the follow-up and those who did not on any baseline assessments.

Defensive Processing

Overall, participants reported low problem importance and personal risk at baseline and low personal risk after reading the message (see Table 1). Repeated measures analyses of covariance, using gender as a covariate, revealed no significant Time by Condition interactions for problem importance, $F(1, 107) = 0.00$, $p = .96$, $\eta_2 = .00$, or personal risk, $F(1, 107) = 2.78$, $p = .10$, $\eta_2 = .03$. Both the control and affirmation groups reported significant increases in problem importance, $F(1, 56) = 16.11$, $p < .001$, $\eta_2 = .22$ (Control); $F(1, 50) = 4.77$, $p < .05$, $\eta_2 = .09$ (Affirmation). However, neither group displayed a significant increase in perception of personal risk, $F(1, 56) = 1.35$, $p = .25$, $\eta_2 = .02$ (Control); $F(1, 50) = 0.20$, $p = .66$, $\eta_2 = .00$ (Affirmation).

Scientific scrutiny of the message did not differ between affirmation (M = 12.81, SD = 3.88) and control (M = 12.95, SD = 3.65) conditions, $F(1, 107) = .02$, $p = .90$. However, males (M = 12.14, SD = 4.01) were significantly more critical of the message than females (M = 13.91, SD = 3.08), $F(1, 107) = 6.22$, $p < .05$.

Follow-up Behaviors

There were no significant Time by Condition interactions for use of protective behavioral strategies, $F(1, 107) = 1.24$, $p = .27$, $\eta_2 = .01$; peak quantity consumed, $F(1, 107) = 0.62$, $p = .44$, $\eta_2 = .01$; or weekly drinks, $F(1, 107) = 0.00$, $p = .97$, $\eta_2 = .00$. Both groups significantly reduced their peak quantity consumed, $F(1, 57) = 9.23$, $p < .01$, $\eta_2 = .14$ (Control); $F(1, 51) = 4.08$, $p < .05$, $\eta_2 = .07$ (Affirmation). Only the affirmation group reported increased use of protective behavior strategies, $F(1, 50) = 4.76$, $p < .05$, $\eta_2 = .03$; $F(1, 57) = 0.42$, $p = .52$, $\eta_2 = .00$ (Control). However, neither the affirmation, $F(1, 50) = 1.65$, $p = .20$, $\eta_2 = .00$, nor the control group, $F(1, 57) = 1.43$, $p = .24$, $\eta_2 = .00$, demonstrated significant changes in total weekly drinks (see Table 1).

Importance of Pre-Existing Beliefs

Block regression was used to determine the importance of pre-existing beliefs in predicting drinking outcomes. At Block 1, gender was entered; at Block 2, condition was added; and at Block 3, pre-existing beliefs regarding problem importance or personal risk were added.

Pre-existing beliefs regarding problem importance accounted for a significant amount of unique variance in weekly drinks, $F(3, 106) = 6.31$, $p = .001$; peak consumption, $F(3, 106) = 5.00$, $p = .003$; and use of protective behavioral strategies, $F(3, 106) = 5.22$, $p = .002$ (see Table 1). Overall, data suggest that pre-existing beliefs regarding problem importance may account for up to 5% of change in drinking outcomes and up to 10% of change in use of protective behavioral strategies. In no case did experimental condition or pre-existing beliefs regarding personal risk predict outcomes.

Comment

The present study examined the effectiveness of a self-affirmation task in decreasing alcohol use and increasing use of protective behavioral strategies among heavy-drinking U.S. college students. Moreover, it determined the importance of pre-existing beliefs in predicting behavior change. Results from this study suggest that self-affirmation tasks are ineffective in enhancing the efficacy of alcohol-related risk messages among heavy-drinking U.S. college students. Although perceptions of problem importance increased in both groups, the only behavioral changes evinced – decrease in peak consumption and increase in protective behavioral strategies – were not significantly related to experimental condition. Conversely, pre-existing beliefs regarding problem importance were more important than experimental condition and equally important to gender in predicting drinking outcomes.

Current findings are consistent with previous studies suggesting that alcohol-related risk messages, even when presented in conjunction with a self-affirmation task, are not effective in deterring high-risk drinking among U.S. college students.[9] Given the range of effective treatments currently available for college students,[28] this strategy should likely not be

presented outside the context of more person-centered approaches, such as Motivational Interviewing. Though this contradicts findings with lower-risk samples of alcohol users,[7,10] it is important for mental health providers in university and college settings to be aware of the individual differences variables (e.g., high- versus low-risk drinking) that may moderate the effectiveness of such interventions. This is consistent with findings that presenting alcohol facts, on its own, is not effective in the prevention of college student drinking.[29]

Limitations

Several limitations of the current study should be considered. First, the sample size was relatively small and from only one southern plains university. However, the intervention effect size was also extremely small; thus, it is unlikely that increasing our sample would have resulted in significant results. Similarly, the demographics and drinking data are similar to other heavy U.S. college student drinking literature, but generalizing to all U.S. college students should be done with caution. Second, the risk message was very scientific in nature and simply presented, and may not have sustained readers' attention. A different risk message may result in less defensive processing and more opportunity for a self-affirmation to enhance message processing. However, the risk message specifically targeted college students and contains population-relevant information.[23] Third, outcomes were collected only via self-report. Although objective measures of alcohol use would be ideal, self-report outcomes have shown to be strongly correlated ($r = 0.76$) with biomarkers of alcohol use.[19]

Conclusions

The current study tested the influence of a self-affirmation task on risk message acceptance, drinking outcomes, and indirect drinking-related behaviors (i.e., protective behavioral strategies) and examined the importance of pre-existing alcohol beliefs in behavioral outcomes. Although self-affirmations have been effective in decreasing defensive processing toward other health messages and in lower-risk drinking samples, they appear to be ineffective in eliciting favorable changes in attitudes or behaviors among high-risk U.S. college students. Pre-existing beliefs may play an important role in facilitating more favorable outcomes and warrant additional attention in future research.

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TABLE 1

Alcohol-Related Beliefs and Behaviors in Affirmation ($n = 58$) and Control ($n = 52$) Groups Across Assessment Periods

	Baseline		Follow-up		Between-group		Regression analyses				
Behavior/belief	***M***	***SD***	***M***	***SD***	***F***	***p***	**Block**	**Variable**	***β***	***p***	**Adj. R^2**
Weekly drinks	13.50	11.40	11.71	11.59	0.00	.97					
Affirmation	13.48	10.27	11.63	10.45			Block 1	Gender	−0.30	.001	.08**
Control	13.52	12.42	11.79	12.62			Block 3	Gender	−0.22	.02	.13**†
								Condition	−0.04	.69	
								Pre-Importance	−0.26	.01	
Peak consumption	9.65	5.20	7.75	6.12	0.62	.44					
Affirmation	9.15	4.82	7.69**	5.27			Block 1	Gender	−0.24	.01	.05*
Control	10.09	5.51	7.79*	6.84			Block 3	Gender	−0.15	.13	.10**†
								Condition	−0.04	.69	
								Pre-Importance	−0.27	.01	
PBSS	50.52	11.50	52.05	11.10	1.24	.27					
Affirmation	49.12	10.26	51.58*	10.67			Block 1	Gender	0.22	.02	.04*
Control	51.78	12.47	52.47	11.55			Block 3	Gender	0.12	.24	.10**†
								Condition	−0.01	.90	
								Pre-Importance	0.30	.002	
	Premessage		Postmessage								
	M	*SD*	*M*	*SD*	*F*	*p*					
Problem importance	20.09	6.32	22.54	7.10	0.003	.96					
Affirmation	19.52	5.66	21.94	7.08							
Control	20.60	6.86	23.07	7.14							
Personal risk	3.66	1.92	4.08	2.05	2.78	.10					
Affirmation	3.88	2.07	3.96	2.00							
Control	3.47	1.76	4.19	2.10							

Note. Adj. = adjusted; Pre-Importance = self-reported perception of problem importance prior to completion of affirmation; PBSS = Protective Behavioral Strategies Scale. No Block 2 regression analyses were statistically significant; therefore, only Block 1 and Block 3 outcomes are depicted.

†Change in *F*-statistic for R^2 change from Step 1 to Step 3 was significant at $p < .05$.

* $p < .05$;

** $p < .01$;

*** $p < .001$.