Experimental and Clinical Psychopharmacology

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Online First Publication, June 10, 2021. http://dx.doi.org/10.1037/pha0000495

American Psychological Association

Experimental and Clinical Psychopharmacology

ISSN: 1064-1297

https://doi.org/10.1037/pha0000495

Behavioral Activation, Affect, and Self-Efficacy in the Context of Alcohol Treatment for Women With Elevated Depressive Symptoms

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Women with Alcohol use disorder (AUD) are more likely than men to have co-occurring depression, drink to cope with negative affect (NA), and cite negative affect as a contributor to relapse. Among AUD treatment seekers, low behavioral activation, NA, and reduced self-efficacy in abstaining from alcohol (e.g., in tempting situations) are relapse risk factors. This study investigated the association between behavioral activation, affective states, and self-efficacy among treatment-seeking women. Participants were 70 women ($M = 40.50$, $SD = 11.59$ years of age) with elevated depressive symptoms seeking AUD treatment. The Behavioral Activation for Depression Scale (BADS) was used to assess environmental engagement. The Alcohol Abstinence Self-Efficacy (AASE) scale was used to assess temptation to drink in contexts of positive and negative affect, and general positive and negative affect were assessed with the Positive and Negative Affect Schedule. Results indicated that behavioral activation was directly correlated with positive affect (PA; $r = .62$, $p < .001$) and inversely correlated with depression ($r = -.35$, $p = .004$), negative affect ($r = -.39$, $p = .001$), and temptation to drink in the context of negative affect ($r = -.33$, $p = .006$). After controlling for depressive symptoms, behavioral activation continued to be associated with greater general positive affect ($\beta = .595$, $p < .001$) and lower temptation to drink in the context of negative affect ($\beta = -.348$ $p = .008$). Our results suggest a nuanced association between behavioral activation, negative affect, and temptations to drink that is not accounted by depressive symptoms. Self-efficacy to abstain from drinking in a negative affect context should be considered when designing AUD interventions for women.

Public Significance Statement

The present study suggests that engagement in one's environment (behavioral activation) is associated with greater positive affect and increased temptation to drink when experiencing negative affect (NA) among women in treatment for alcohol use disorder. Interventions should consider identifying negative affect and increasing behavior activation among this population.

Keywords: behavioral activation, alcohol use disorder, negative affect, self-efficacy

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This project was supported by the National Institute of Alcohol Abuse and Alcoholism (NIAAA): R34 AA024038 (Abrantes), K23 AA028269 (Meshesha), and L30 AA027041 (Emery). NIAAA has no role in the study design, collection, analysis or interpretation of the data, writing the manuscript, or the decision to submit the article for publication.

The authors declare no conflicts of interest regarding this manuscript.

Lidia Z. Meshesha—Conceptualization, Formal Analysis, Writing: Original Draft. Noah N. Emery—Writing: Original Draft, Writing: Review & Editing. Claire E. Blevins: Investigation, Project administration, Writing: Review & Editing. Cynthia L. Battle—Investigation, Methodology, Writing: Review & Editing, Funding Acquisition. Marie A. Silice—Investigation, Writing: Review & Editing. Eliza Marsh—Investigation, Writing: Review & Editing. Sage Feltus—Investigation, Writing: Review & Editing. Michael D. Stein—Funding Acquisition, Writing: Review & Editing. Ana M. Abrantes—Conceptualization, Resources, Writing: Review & Editing, Funding Acquisition.

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Alcohol use disorder (AUD) is a leading cause of death, disability, and health care costs globally (World Health Organization [WHO], 2018). Achieving and sustaining abstinence remains a persistent challenge for individuals seeking recovery (Miller et al., 2001; Moos & Moos, 2006). Given the immense personal and public cost of AUD, helping individuals achieve remission is one of the most important issues confronting addiction scientists today. Historically, men initiate drinking earlier and tend to drink more than women (Hasin et al., 2007; Zilberman et al., 2004). However, once women start drinking, they progress to AUD faster than men (i.e., telescoping; Grant et al., 2017; Hernandez-Avila et al., 2004; Richter, 2019). Women with AUD have a distinct clinical profile with different motivations for consuming alcohol (Birch et al., 2006; Foster et al., 2014), reinforcement patterns (Simons et al., 2017), and ways in which they derive benefit from recovery services (Kelly & Hoeppner, 2013). One factor that is consistently linked to the development, progression, maintenance, and remission of AUD in women is coping with negative affect (NA).

The Affective Motivational Theory—an extension of the negative reinforcement model of addiction, posits that individuals consume alcohol to obtain the desired emotional payoff (i.e., reduction in NA) and that this payoff is the central mechanism in the development and maintenance of AUD (Baker et al., 2004; McCarthy et al., 2010; Sher & Grekin, 2007). Using alcohol to reduce NA appears to be particularly relevant for women, with empirical evidence indicating: (a) women with AUD are much more likely than men to state that they drink to cope with NA (Birch et al., 2006; Foster et al., 2014); (b) drinking's ameliorative effect on NA is only evident among women (Simons et al., 2017); (c) women describe NA as a critical setting in which relapse occurs (Walitzer & Dearing, 2006; Zywiak et al., 2006); and (d) women benefit more from recovery supports that aid NA regulation than men (Kelly & Hoeppner, 2013). Despite this, women in recovery are consistently underrepresented in published studies (Beery & Zucker, 2011; Swearingen et al., 2003), making it difficult to understand what factors contribute to NA and NA regulation in early recovery. This knowledge is necessary to develop treatments specific to women's needs, particularly as the rate of women with AUD has increased 84% in the past decade compared to 35% among men (Grant et al., 2017). There is an urgent need to conduct a nuanced investigation on key constructs relevant for treatment-seeking women.

Behavioral activation (BA) is a factor related to both affective functioning and substance use that has clear clinical relevance. BA is the process of engaging in rewarding or values-driven activities to evoke improvements in cognitions, mood, and quality of life while decreasing experiential avoidance (Vujanovic et al., 2017). BA has been shown to increase positive affect (PA) and decrease both depression symptoms (including NA) and substance use in clinical samples (Daughters et al., 2008). Given its relevance to both NA and alcohol use, BA may be an important ingredient for recovery among women with AUD, yet there is limited research focused on BA's role in the context of AUD treatment. Specifically, there is a need to investigate the associations between BA and affective states among treatment seekers as these associations may be predictors of treatment outcomes. Another key construct associated with women's AUD treatment outcomes is self-efficacy (Trucco et al., 2007). Self-efficacy is the belief that one can cope effectively with high-risk situations (Bandura, 1977), such as when the temptation to drink is highest (i.e., while experiencing intense NA, or earlier in one's recovery; Waters et al., 2020). Research shows that increased self-efficacy in early recovery is associated with the decreased temptation to drink and relapse posttreatment (Greenfield et al., 2000; Monti et al., 2001). Overall, while the affective motivational model suggests the importance of examining affective states among individuals with addiction, there is further evidence suggesting a particular need to specifically examine NA and factors that can influence NA. These factors include behavioral activation—as activation is associated with either increased PA and decreased NA, and temptation to drink (self-efficacy) in the context of positive or negative affective states.

While self-efficacy and affective states have been studied within the context of treating alcohol use, there is limited research examining how these constructs are associated with BA among women in AUD treatment. This is important given the significance of these factors in this relatively under investigated population. Little is known about the associations between BA, general positive or negative affective states, and the temptation to drink in positive or negative affective states among a clinical sample of treatment-seeking women in early recovery. The present study examines whether BA is associated with self-efficacy to abstain from drinking (in positive and negative affective states) and general PA and NA in women during early AUD recovery. We hypothesized that greater BA will be (a) positively associated with general PA and self-efficacy in PA contexts and (b) negatively associated with general NA and self-efficacy in NA contexts.

Method

Participants

Participants were 70 adult women with AUD and elevated depressive symptoms seeking treatment at an alcohol and drug partial hospitalization program. All participants were recruited based on their interest in enrolling in one of two technology-supported physical activity interventions to reduce relapse risk (see Abrantes et al., 2017, for details on the larger study). Participants were eligible if they were: Female, between 18 and 65 years of age, currently enrolled in the treatment program, scored five or above for depressive symptoms on the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), endorsed low levels of physical activity, and owned a smartphone/had internet access via computer. Participants were excluded if they met criteria for a DSM-5 (American Psychiatric Association [APA], 2013) diagnosis of anorexia, bulimia, or moderate-to-severe substance use disorder other than alcohol and nicotine, had a history of psychotic disorder, had current psychotic symptoms or mania, endorsed suicidal/homicidal ideation, were pregnant or planning a pregnancy in the next 3 months, or medical/health problems contraindicated for increasing physical activity.

Procedure

All procedures were approved by the Institutional Review Board. Potential participants were approached within the first 1–3 days of treatment admission and provided information about the study; interested individuals were screened for inclusion/exclusion criteria, and those eligible provided consent prior to study enrollment.

All analyses reported herein use data collected at baseline, prior to study intervention delivery.

Measure

Alcohol Use

The timeline follow-back calendar (TLFB; Sobell & Sobell, 1995) was administered to assess for quantity and frequency of alcohol use over the previous 90 days and calculate percent drinking days.

Behavior Activation

The brief version of the Behavioral Activation for Depression Scale—Short Form (BADS; Manos et al., 2011) was used to assess past week BA and behavioral avoidance. Avoidance items were reverse-scored and summed for a total BA score. An example sample item includes, "I engage in many different activities" rated on a 0 (*not at all*)−6 (*completely*) scale. Higher scores report greater activation. Internal consistency was $\alpha = 0.80$.

Self-Efficacy

The Alcohol Abstinence Self-Efficacy (AASE, DiClemente et al., 1994) assessed temptation to drink and confidence of abstaining from drinking in situations such as "When I am very worried" or "When I am excited or celebrating with others." This study utilized the NA and social/positive affect subscales. This generated four distinct subscales: (a) temptation to drink in NA states, (b) confidence in abstaining in NA states, (c) temptation to drink in PA states, and (d) confidence in abstaining in PA states. In this sample, internal consistency was at $\alpha = 0.91$, 0.91 for the NA temptation and confidence subscales, respectively and $\alpha = 0.90$, .92 for the PA temptation and confidence subscales, respectively.

Positive and Negative Affect

The Positive and NA Schedule (PANAS; Watson et al., 1988) assessed for general past week experiences of PA and NA, which included rating feelings of "excited," "upset," or "scared" on a scale of 1 (*very slightly or not at all*) to 5 (*extremely*). Items were summed to create a PA or NA total score. Internal consistency was $\alpha = 0.92$ for PA and $\alpha = 0.90$ for NA.

Depressive Symptoms

The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) was used as a self-report measure of experiences of depressive symptoms in the past 2 weeks. Participants rated experiences such as, "Feeling down, depressed, or hopeless" on a scale of 0 (*not at all*) −3 (*nearly every day*). Internal consistency was $\alpha = 0.63$.

Data Analysis Plan

The initial view of the data suggested all variables utilized in this study were normally distributed and therefore no data transformations were computed. Subsequently, Pearson correlations were conducted among alcohol use, general PA and NA, the four subscales of alcohol self-efficacy (NA/PA temptation and NA/PA confidence), and BA. We conducted follow-up linear multiple regression models with the variables that were significantly associated with the primary outcome variable, BA. Two regression models evaluated the association between general PA and NA with BA, and temptation to drink (self-efficacy) in the context of PA and NA with BA while controlling for depressive symptoms. All predictors were entered into the model simultaneously, thus, regression coefficients represent semipartial estimates. Analyses were conducted with Mplus Version 7.3 (Muthén & Muthén, 2012).

Results

Participants were primarily non-Hispanic White (90%), 5.7% racial minority, and averaged 40.50 ($SD = 11.59$) years of age. Participants reported drinking on average 65.03 ($SD = 28.71$) percent of days in the past 90 days and scored a mean of 12.97 ($SD = 4.26$) on the PHQ-9. Alcohol use and descriptive data on outcome variables are presented in Table 1.

BA was positively correlated with general PA and negatively correlated with depression, general NA, and temptation to drink in the context of NA. The self-efficacy confidence subscales (both PA and NA) did not significantly correlate with BA, consequently, they were not included in the multiple regression models. Bivariate correlation results are presented in Table 1.

Table 1
Bivariate Correlations and Descriptive Data of Outcome Variables

Variable	1	2	3	4	5	6	7	8	9
1. Percent drinking days in past 90 days	—								
2. Depression	0.039	—							
3. Positive affect	0.032	−.271*	—						
4. Negative affect	0.086	.388**	−.420**	—					
5. Positive affect temptation	0.174	.274*	−0.051	.245*	—				
6. Negative affect temptation	−0.014	0.176	−0.168	.329**	.620**	—			
7. Positive affect confidence	−.258*	−0.083	0.036	−.315*	−.616**	−.389**	—		
8. Negative affect confidence	−0.022	−0.185	0.126	−.406**	−.399**	−.592**	.730**	—	
9. Behavioral activation (BA)	0.071	−.350**	.624**	−.398**	−0.184	−.333**	0.019	0.124	—
n	70	70	67	65	70	70	70	70	67
M	65.03%	12.97	29.48	26.77	14.18	15.44	17.13	16.21	27.10
SD	28.71%	4.26	9.05	8.44	5.43	5.43	5.89	5.36	9.92
Range	2%–100%	5–23	11–50	11–48	5–25	5–25	2–25	2–25	4–48

* $p < .05$. ** $p < .01$.

Multiple regression models that controlled for depression indicated that BA was associated with less temptation to drink in the context of NA ($p = .008$), but there was no statistically significant association with the temptation to drink in the context of PA ($p = .419$). Further, BA was associated with increased general PA ($p < .001$), but there was no statistically significant association with general NA ($p = .257$). See Table 2.

Discussion

This study investigated the association between BA, negative and positive affective states, and alcohol use self-efficacy (both confidence in abstaining and temptation to drink) among an alcohol treatment-seeking sample of women in AUD treatment with elevated depressive symptoms. Our results suggest that while BA was not associated with general NA, it was protective against the temptation to drink in the context of NA. Furthermore, BA was associated with greater general PA. There were no statistically significant associations between BA and confidence in abstaining from alcohol.

These results suggest a nuanced association between BA, NA, and self-efficacy above and beyond depressive symptoms. Findings may help researchers and clinicians better understand alcohol treatment outcome predictors. Prior findings suggest that women identify NA as a significant trigger of relapse (Zywiak et al., 2006) and that BA interventions, initially developed to treat depression, improve alcohol treatment outcomes (Daughters et al., 2018). Our results shed light on the role of self-efficacy (specifically, temptation to drink) in the association between NA and BA; BA is protective against the temptation to drink when experiencing NA. These results suggest that behavioral activation interventions may be particularly suited for women with affective vulnerabilities who are initiating AUD treatment. Although previous research evaluating BA interventions for alcohol report overall positive substance use outcomes among both men and women, this is the first study to evaluate the association between BA, affective states, and self-efficacy within a treatment-seeking sample of women. Future intervention studies will be able to answer the question of whether increasing BA does indeed lead to decreases in the temptation to drink when exposed to situations that increase NA (e.g., stressful life events). Of note, despite that this study excluded individuals engaging in higher levels of physical activity, our results indicated a wide range of BA from 4 to 48 (see Table 1) from a possible range of 0–54. This observed range reflects that the BA measure items were not specific to physical activity but were inclusive of goal attainment, participation in enjoyable activities, and overall engagement instead of avoidance in one's environment. Thus, our measurement of BA was not limited or restricted by the inclusion criteria and allowed for assessment of a full range of the construct as measured by the BADS.

Our results did not suggest an association between BA and drinking (likely due to similarly elevated levels of drinking across the sample). Further, we did not find general NA to be associated with BA, despite the robust literature suggesting BA as an effective treatment for depression (Mazzucchelli et al., 2009). This unexpected finding may be a result of our inclusion criteria of at least mild depressive symptoms—the exclusion of no depressive symptoms could have reduced variability in the sample's range of depressive symptoms. Although we do not equate depression with NA, NA is an important element of depression. This could have limited the full range of NA that may be represented in the previous literature. However, we did find a positive relationship between BA and PA, which is consistent with prior research suggesting that greater BA is associated with increased PA (Dornbach-Bender et al., 2020; Gable et al., 2000).

Some limitations should be considered when interpreting these results. First, this study utilized a cross-sectional design which limits examining directionality in the relations between BA, affective states, and self-efficacy. It would be of value for future studies to evaluate these measures longitudinally and understand their impact on treatment outcomes. Further, this study sample was limited demographically in that it was primarily composed of Caucasian women. Future research with more racially and ethnically diverse samples of women will be important to gauge the generalizability of our findings.

In sum, the greater anticipatory temptation to drink when experiencing NA was associated with lower BA. Emerging research investigating BA interventions in the context of alcohol treatment may need to consider the role of alcohol self-efficacy (specifically, temptation to drink) associated with NA. Although previous research has investigated BA treatment for alcohol (Daughters et al., 2018), this is the first study to examine the role of self-efficacy as a risk factor associated with lowered behavioral activation. These results suggest the importance of considering the relationship between NA, BA, and self-efficacy within alcohol treatment.

Table 2

Multiple Regression Outcomes of the Association Between Behavioral Activation With General Positive Affect, General Negative Affect (Model 1), and Temptation to Dink in the Context of Positive or Negative Affect (Model 2)

Outcome variable	Estimate	*SE*	95% CI LL	95% CI UL	*p* value
Model 1: Depression	−.299	.240	−.693	.095	.212
General positive affect	.595	.115	.405	.595	<.001**
General negative affect	−.0147	.130	−.360	.066	.257
Model 2: Depression	−.322	.108	−.499	−.144	.003
PA temptation	.113	.140	−.117	.342	.419
NA temptation	−.348	.132	−.565	−.131	.008**

Note. *SE* = Standard Error; PA = Positive Affect; NA = Negative Affect; CI = confidence interval; LL = lower limit; UL = upper limit.
** $p < .01$.

References

Abrantes, A. M., Blevins, C. E., Battle, C. L., Read, J. P., Gordon, A. L., & Stein, M. D. (2017). Developing a Fitbit-supported lifestyle physical activity intervention for depressed alcohol dependent women. *Journal of Substance Abuse Treatment*, *80*, 88–97. https://doi.org/10.1016/j.jsat.2017.07.006

American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (DSM-5®).

Baker, T. B., Piper, M. E., McCarthy, D. E., Majeskie, M. R., & Fiore, M. C. (2004). Addiction motivation reformulated: An affective processing model of negative reinforcement. *Psychological Review*, *111*, 33–51. https://doi.org/10.1037/0033-295X.111.1.33

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Beery, A. K., & Zucker, I. (2011). Sex bias in neuroscience and biomedical research. *Neuroscience and Biobehavioral Reviews*, *35*, 565–572. https://doi.org/10.1016/j.neubiorev.2010.07.002

Birch, C. D., Stewart, S. H., Girling, A. N., & Berish, M. J. (2006). The impact of mood, drinking motives, and gender on laboratory alcohol consumption. In A. V. Clark (Ed.), *Psychology of moods* (pp. 1–36). Nova Science Publishers.

Daughters, S. B., Braun, A. R., Sargeant, M. N., Reynolds, E. K., Hopko, D. R., Blanco, C., & Lejuez, C. W. (2008). Effectiveness of a brief behavioral treatment for inner-city illicit drug users with elevated depressive symptoms: The life enhancement treatment for substance use (LETS Act!). *The Journal of Clinical Psychiatry*, *69*, 122–129. https://doi.org/10.4088/JCP.v69n0116

Daughters, S. B., Magidson, J. F., Anand, D., Seitz-Brown, C. J., Chen, Y., & Baker, S. (2018). The effect of a behavioral activation treatment for substance use on post-treatment abstinence: A randomized controlled trial. *Addiction*, *113*(3), 535–544. https://doi.org/10.1111/add.14049

DiClemente, C. C., Carbonari, J. P., Montgomery, R. P., & Hughes, S. O. (1994). The alcohol abstinence self-efficacy scale. *Journal of Studies on Alcohol*, *55*(2), 141–148. https://doi.org/10.15288/jsa.1994.55.141

Dornbach-Bender, A., Ruggero, C. J., Smith, P., Schuler, K., Bennett, C. B., Neumann, C. S., & Callahan, J. L. (2020). Association of behavioral activation system sensitivity to lower level facets of positive affect in daily life. *Personality and Individual Differences*, *152*, Article 109570. https://doi.org/10.1016/j.paid.2019.109570

Foster, D. W., Young, C. M., Steers, M., Quist, M. C., Bryan, J. L., & Neighbors, C. (2014). Tears in your beer: Gender differences in coping drinking motives, depressive symptoms and drinking. *International Journal of Mental Health and Addiction*, *12*, 730–746. https://doi.org/10.1007/s11469-014-9504-3

Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology*, *78*(6), 1135–1149. https://doi.org/10.1037/0022-3514.78.6.1135

Grant, B. F., Chou, S. P., Saha, T. D., Pickering, R. P., Kerridge, B. T., Ruan, W. J., Huang, B., Jung, J., Zhang, H., Fan, A., & Hasin, D. S. (2017). Prevalence of 12-month alcohol use, high-risk drinking, and DSM-IV alcohol use disorder in the United States, 2001–2002 to 2012–2013: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *JAMA Psychiatry*, *74*, 911–923. https://doi.org/10.1001/jamapsychiatry.2017.2161

Greenfield, S. F., Hufford, M. R., Vagge, L. M., Muenz, L. R., Costello, M. E., & Weiss, R. D. (2000). The relationship of self-efficacy expectancies to relapse among alcohol dependent men and women: A prospective study. *Journal of Studies on Alcohol*, *61*, 345–351. https://doi.org/10.15288/jsa.2000.61.345

Hasin, D. S., Stinson, F. S., Ogburn, E., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*, *64*, 830–842. https://doi.org/10.1001/archpsyc.64.7.830

Hernandez-Avila, C. A., Rounsaville, B. J., & Kranzler, H. R. (2004). Opioid-, cannabis- and alcohol-dependent women show more rapid progression to substance abuse treatment. *Drug and Alcohol Dependence*, *74*, 265–272. https://doi.org/10.1016/j.drugalcdep.2004.02.001

Kelly, J. F., & Hoeppner, B. B. (2013). Does Alcoholics Anonymous work differently for men and women? A moderated multiple-mediation analysis in a large clinical sample. *Drug and Alcohol Dependence*, *130*, 186–193. https://doi.org/10.1016/j.drugalcdep.2012.11.005

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Manos, R. C., Kanter, J. W., & Luo, W. (2011). The behavioral activation for depression scale-short form: Development and validation. *Behavior Therapy*, *42*(4), 726–739. https://doi.org/10.1016/j.beth.2011.04.004

Mazzucchelli, T., Kane, R., & Rees, C. (2009). Behavioral activation treatments for depression in adults: A meta-analysis and review. *Clinical Psychology: Science and Practice*, *16*(4), 383–411. https://doi.org/10.1111/j.1468-2850.2009.01178.x

McCarthy, D. E., Curtin, J. J., Piper, M. E., & Baker, T. B. (2010). Negative reinforcement: Possible clinical implications of an integrative model. In J. D. Kassel (Ed.), *Substance abuse and emotion* (pp. 15–42). American Psychological Association. https://doi.org/10.1037/12067-001

Miller, W. R., Walters, S. T., & Bennett, M. E. (2001). How effective is alcoholism treatment in the United States? *Journal of Studies on Alcohol*, *62*, 211–220. https://doi.org/10.15288/jsa.2001.62.211

Monti, P. M., Rohsenow, D. J., Swift, R. M., Gulliver, S. B., Colby, S. M., Mueller, T. I., Brown, R. A., Gordon, A., Abrams, D. B., Niaura, R. S., & Asher, M. K. (2001). Naltrexone and cue exposure with coping and communication skills training for alcoholics: Treatment process and 1-year outcomes. *Alcoholism: Clinical and Experimental Research*, *25*, 1634–1647. https://doi.org/10.1111/j.1530-0277.2001.tb02170.x

Moos, R. H., & Moos, B. S. (2006). Rates and predictors of relapse after natural and treated remission from alcohol use disorders. *Addiction*, *101*, 212–222. https://doi.org/10.1111/j.1360-0443.2006.01310.x

Muthén, L. K., & Muthén, B. O. (2012). *MPlus: Statistical analysis with latent variables: User's guide*; [Version 7]. Muthén et Muthén.

Richter, L. (2019). Alcohol and women: Unique risks, effects, and implications for clinical practice. In V. R. Preedy (Ed.), *Neuroscience of alcohol* (pp. 21–28). Academic Press. https://doi.org/10.1016/B978-0-12-813125-1.00003-9

Sher, K. J., & Grekin, E. R. (2007). Alcohol and Affect Regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 560–580). Guilford Press.

Simons, J. S., Emery, N. N., Simons, R. M., Wills, T. A., & Webb, M. K. (2017). Effects of alcohol, rumination, and gender on the time course of negative affect. *Cognition and Emotion*, *31*(7), 1405–1418. https://doi.org/10.1080/02699931.2016.1226162

Sobell, L. C., & Sobell, M. B. (1995). *Alcohol timeline followback users' manual*. Addiction Research Foundation.

Swearingen, C. E., Moyer, A., & Finney, J. W. (2003). Alcoholism treatment outcome studies, 1970–1998: An expanded look at the nature of the research. *Addictive Behaviors*, *28*, 415–436. https://doi.org/10.1016/S0306-4603(01)00251-9

Trucco, E. M., Connery, H. S., Griffin, M. L., & Greenfield, S. F. (2007). The relationship of self-esteem and self-efficacy to treatment outcomes of alcohol-dependent men and women. *The American Journal on Addictions*, *16*, 85–92. https://doi.org/10.1080/10550490601184183

Vujanovic, A. A., Meyer, T. D., Heads, A. M., Stotts, A. L., Villarreal, Y. R., & Schmitz, J. M. (2017). Cognitive-behavioral therapies for depression and substance use disorders: An overview of traditional, third-wave, and transdiagnostic approaches. *The American Journal of Drug and Alcohol Abuse*, *43*, 402–415. https://doi.org/10.1080/00952990.2016.1199697

Walitzer, K. S., & Dearing, R. L. (2006). Gender differences in alcohol and substance use relapse. *Clinical Psychology Review*, *26*, 128–148. https://doi.org/10.1016/j.cpr.2005.11.003

Waters, A. J., Schoenmakers, T. M., Snelleman, M., Szeto, E. H., Franken, I. H. A., Hendriks, V. M., & van de Mheen, D. (2020). Affect, motivation, temptation, and drinking among alcohol-dependent outpatients trying to maintain abstinence: An Ecological Momentary Assessment study. *Drug and Alcohol Dependence*, *206*, Article 107626. https://doi.org/10.1016/j.drugalcdep.2019.107626

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

World Health organization. (2018). *Global status report on alcohol and health 2018: Executive summary* (No. WHO/MSD/MSB/18.2).

Zilberman, M., Tavares, H., & El-Guebaly, N. (2004). Gender similarities and differences: The prevalence and course of alcohol- and other substance-related disorders. *Journal of Addictive Diseases*, *22*, 61–74. https://doi.org/10.1300/J069v22n04_06

Zywiak, W. H., Stout, R. L., Trefry, W. B., Glasser, I., Connors, G. J., Maisto, S. A., & Westerberg, V. S. (2006). Alcohol relapse repetition, gender, and predictive validity. *Journal of Substance Abuse Treatment*, *30*, 349–353. https://doi.org/10.1016/j.jsat.2006.03.004

Received December 8, 2020
Revision received April 19, 2021
Accepted April 19, 2021 ■