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A Daily Process Examination of Episode-Specific Drinking to Cope Motivation among College Students

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Abstract

Objective—Theory suggests that state- and trait-like factors should interact in predicting drinking to cope (DTC) motivation, yet no research to date has demonstrated this at the drinking episode level of analysis. Thus, we examined whether daily variation in positive and negative affect and avoidance and active coping were associated with DTC motivation during discrete drinking episodes and whether these associations were moderated by tension-reduction expectancies and other person-level risk factors.

Methods—Using a secure website, 722 college student drinkers completed a one-time survey regarding their tension reduction expectancies and then reported daily for 30 days on their affect, coping strategies, drinking behaviors and motives for drinking.

Results—Individuals reported higher levels of DTC motivation on days when negative affect and avoidance coping were high and positive affect was low. We found only little support for the predicted interactive effects among the day- and person-level predictors.

Conclusion—Our results support the state and trait conceptualizations of DTC motivation and provide evidence for the antecedent roles of proximal levels of daily affect and avoidance coping. Our inconsistent results for interaction effects including day-level antecedents raises the possibility that some of these synergistic processes might not generalize across level of analysis.

Keywords

Drinking motives; affect regulation; coping; state; trait; college drinking

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1. Introduction

Consistent evidence indicates that drinking to cope (DTC) motivation predicts alcohol-related problems over and above alcohol consumption levels (e.g., Cooper, Frone, Russell, & Mudar, 1995; Merrill, Wardell, & Read, 2014; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007; Simons, Gaher, Correia, Hansen, & Christopher, 2005). Theory suggests that both stable individual differences and proximal state-like risk factors combine to influence DTC motivation (Cooper et al., 1995; Cooper, Russell, & George, 1988); however, few studies have examined these antecedents at the drinking-episode level of analysis. In the present study we used a micro-longitudinal design to examine how daily affective states and situational coping are uniquely predictive of episode-specific reports of DTC motivation and how these within-person associations vary as a function of individual difference factors identified in the social learning affect-regulation (SLAR) framework (Abrams & Niaura, 1987). We examined these questions in a sample of college student drinkers – a population at high risk for heavy drinking and physical and social consequences (Hingson, Heeren, Winter, & Wechsler, 2005).

1.1 Drinking to cope motivation and level of analysis

According to the SLAR model, trait-like factors such as beliefs regarding the tension-reducing effects of drinking and individuals' coping style combine in an additive and interactive fashion with more proximal antecedents, such as affective states and situational coping strategies, to influence coping-related drinking (Cooper et al., 1988; Cooper et al., 1995). Specifically, this framework implies that individuals with strong tension-reduction expectancies (TREs) and those who characteristically rely on less adaptive coping strategies (namely, avoidance coping) are more likely to engage in coping-motivated drinking when they experience increased distress. Although a large body of research has examined these antecedents (e.g., Read et al., 2003; Simons et al. 2005), the overwhelming majority of these studies have used cross-sectional or long-term longitudinal research designs that de facto treat motives as somewhat stable, trait-like constructs that only change slowly over time. Use of such designs limits the conclusions that can be drawn about the dynamic within-person processes spelled out in theoretical models, including whether DTC motivation is higher on days characterized by relatively higher levels of proximal antecedents.

To date only a few studies have examined the within-person effects of proximal antecedents of episode-specific variation in DTC motivation. Both Arbeau, Kuiken, and Wild (2011) and Dvorak, Pearson, and Day (2014) found among college students that DTC motivation was higher on days characterized by higher negative affect, and Arbeau et al. found that DTC motivation was higher on days characterized by lower positive affect. O'Hara, Armeli, and Tennen (2014) also found that DTC motivation among college students was higher on days characterized by relatively higher sadness and that drinking occurred earlier in weeks characterized by relatively higher levels of sadness, anger, and anxiety. Neither study, however, examined whether daily engagement in various coping strategies were related to DTC motivation. Additionally, previous studies using micro-longitudinal designs have not examined how these within-person processes vary across individuals as a function of key

person-level vulnerabilities such as TREs and individual differences in avoidance coping and distress.

1.2 The present study

Consistent with the SLAR framework, we examined whether episode-level variation in DTC motivation can be explained by variation in positive and negative affect and avoidance coping earlier in the day and whether these within-person associations are moderated by person-level factors identified in the SLAR model. Our central hypothesis was that when participants experienced days characterized by high levels of negative affect and avoidance coping they would report higher levels of DTC motivation that evening. Consistent with theory (e.g., Cooper et al., 1995) we also tested whether these antecedents had multiplicative effects. At the daily level of analysis, we tested whether the within-person association between daily negative affect and DTC motivation would be stronger in the positive direction on days when individuals were engaged in a high level of avoidance coping and whether the effects of the day-level predictors would be stronger (in the positive direction) among more vulnerable individuals, i.e., individuals with higher levels of tension-reduction expectancies and higher average (aggregate) levels of daily avoidance coping and negative affect.

We also had several secondary aims. We sought to replicate findings showing an inverse association between daily positive affect and DTC motivation (Arbeau et al., 2011). Additionally, we examined the role of daily active coping in DTC motivation. Previous findings have been inconsistent regarding the role that active coping may play in DTC motivation (e.g., Cooper, et. al., 1995) – though no study has examined it at the daily level of analysis. Finally, we explored the associations described above substituting drinking level as the dependent variable instead of DTC motivation. Given that overall drinking level includes drinking for a variety of reasons (e.g., enhancement, social, conformity) – each having a distinct antecedent profile (e.g., Cooper et al., 1995, Simons et al., 2005) – we would expect stronger effects of our identified antecedents in predicting DTC motivation, thus demonstrating the specificity of these antecedents in this pathway.

2. Methods

2.1 Participants

College students ($N = 924$) were recruited over five semesters through the Psychology research pool of a state university and through campus-wide broadcast messages. To be eligible for participation, students had to be at least 18 years old and needed to report drinking alcohol at least twice in the past month (measured during prescreening). Students ($N = 202$) were omitted from the final sample either due to low daily adherence (< 15 daily reports), missing data on person variables of interest, or failure to report a drinking episode during the 30-day study duration.

The final sample of 722 (54.2% female) had an average age of 19.24 years ($SD = 1.51$), was mostly European-American (82.8%) and either freshmen or sophomores (72.4%). Compared to the final sample, excluded participants had a larger percentage of males (56.4% vs.

46.5%), $\chi^2(1) = 7.09$; $p = .008$, were less advanced in school (82.2% vs. 72.4% freshmen/sophomores), $\chi^2(1) = 7.90$; $p = .005$, and were more likely to be minorities (34.7% vs. 17.2%), $\chi^2(1) = 29.07$; $p < .01$.

2.2 Procedure

Approximately one month following the start of the semester participants completed a baseline survey containing demographic items and a measure of alcohol-outcome expectancies. Approximately two weeks later, participants began completing a daily online diary. Each day for 30 days, participants completed the daily diary between the hours of 2:30 PM and 7:00 PM. This time window was selected to coincide with most undergraduate students' end of school day and before the onset of evening activities. This window was also designed to minimize instances of participants completing the diary while under the influence of alcohol. The survey queried participants about (a) their current affective states, coping efforts, and drinking that day (i.e., up to reporting time) and (b) their drinking from the past evening (i.e., drinking that occurred after completing the previous day's diary). If any alcohol use was reported for the previous evening, participants were then queried about their drinking motives for that episode. Participants were paid for their participation.

Participants reported on 18,997 person-days (out of a maximum of 21,660 person-days; 88% adherence rate) and reported drinking on 20.6% of the reporting days, yielding 3,913 days for analysis. Complete data were needed from consecutive days to match daytime affect and coping (reported on day t) with nighttime drinking motives for that day (reported on day $t + 1$). Due to missing days and the loss of the final day (given no follow up day), the data were further reduced to 3,203 person-days for analyses.

2.3 Measures

Tension reduction expectancies—In the baseline survey participants responded to items from the tension-reduction subscales of the Alcohol Effects Questionnaire (AEQ; Rohsenow, 2000) and Comprehensive Effects of Alcohol Scale (Fromme, Stroot, & Kaplan, 1993). For all items, participants indicated what they personally experience after having a few drinks using a 7-point scale (1 = “strongly disagree” to 7 = “strongly agree”). Example items are “Alcohol makes me less worried about doing things well” and “*Drinking makes me feel calm*”. Reliability for the scale (α) was .88.

Daily affect—In the daily diary participants reported their current affective state using items from the Positive and Negative Affect Schedule–Expanded (Watson, Clark, & Tellegen, 1988) and Larsen and Diener's (1992) affect circumplex. Responses were made using a 5-point scale (1 = “not at all” to 5 = “extremely”). Negative affect was assessed with items “sad,” “dejected,” “anxious,” “nervous,” “angry,” and “hostile.” Positive affect was assessed with items “happy,” “cheerful,” “relaxed,” and “calm.” Reliability (α) was .79 for the negative affect composite and .86 for the positive affect composite. These variables were also aggregated across all days to create an overall average level.

Daily coping—In the daily diary participants were asked the following: “Regarding any stressful events or experiences you might have had today, which of the following strategies

did you use to deal with them?” Items were based on Carver, Scheier, and Weintraub's (1989) measure, and responses were made using a 4-point scale (1 = “not at all” to 4 = “a lot”). Avoidance coping was assessed with “I avoided dealing with a situation” and “I tried to distract myself and keep my mind off of a problem.” Active coping was assessed with “I actively dealt with a problem, for example, I did what needed to be done or did something about it” and “I put aside other activities/suppressed other thoughts to focus on a problem that needed my attention.” Reliability (α) was .79 for avoidance coping and .65 for active coping. These variables were also aggregated across all days to create an overall average level.

Daily alcohol use—In the daily diary participants responded to two questions regarding the number of alcoholic drinks they consumed (a) the previous night and (b) up to reporting time on the day of reporting. Reports were further broken down in terms of the number of drinks consumed “with others/in a social setting” or “alone/not interacting with others.” A drink was defined as equal to one 12-oz. can or bottle of beer, one 5-oz. glass of wine, one 12-oz. wine cooler, or 1-oz. of liquor straight or in a mixed drink. Responses were made by clicking one of 17 response options ranging from 0 to 15, and then >15 (recoded as 16). We summed drinking across the two social settings to create a daytime and nighttime value.

Episode-specific drinking to cope motives—In the daily diary when participants reported drinking the previous night they were presented with an adapted version of the coping items from the Drinking Motives Questionnaire-Revised scale (Cooper, 1994). Participants were asked “Why did you drink last night?” and DTC motives were assessed with items “To forget my ongoing problems/worries,” “To feel less depressed,” “To feel less nervous,” “To avoid dealing with my ongoing problems,” “To cheer up,” “Because I was angry,” and “To feel more confident/sure of myself.” Responses were made on a 3-point scale (0 = “No”, 1 = “Somewhat”, 2 = “Definitely”). Reliability for the scale (α) was .83.

2.4 Data analysis

Given the non-independence in our data due to multiple daily assessments nested within individuals, we estimated linear multilevel regression models (Raudenbush & Bryk, 2002) using HLM software (Raudenbush, Bryk, & Congdon, 2004) to test the hypotheses. Because DTC motives were only assessed for days during which drinking occurred, analyses were limited to these records.

Our central hypothesis concerned the prediction of nighttime levels of DTC motivation from affective states and coping strategies earlier in the day. Given that individuals reported on nighttime drinking levels and DTC motives for day t in the following day's diary (i.e., day $t + 1$), values for nighttime drinking levels and DTC motives were lagged back one record to align with day t levels of affect and coping. Thus, our initial model had the following specification: At level 1 we predicted nighttime DTC motivation (reported on day $t+1$) from positive and negative affect, avoidance and active coping reported on day t . Also included in the level 1 model as controls were daytime drinking (reported on day t) and a weekend dummy code [0 = weekday, 1 = weekend (Thursday, Friday and Saturday)]. The daily affect and the coping predictors were person-mean centered, allowing us to examine how DTC

motivation varies as a function of relative within-person changes in these variables. The first model tested also included TREs and aggregate levels of coping and affect in the level 2 portion of the model as predictors of the level 1 intercepts. This allowed us to examine how these person-level variables were related to mean levels of DTC motivation. All level 2 variables were grand-mean centered.

In a second step, we examined the two-way interactions of interest. Specifically, product terms for the person-level interactions among TREs, aggregate avoidance coping and aggregate negative affect were included as predictors of the level 1 intercepts. Additionally, TREs, aggregate avoidance coping and aggregate negative affect were included into the level 2 portion of the model predicting level 1 slopes; these effects tested the cross-level interactions between the day-level and person-level predictors. In the last step we modeled the relevant 3-way interactions among the daily- and person- level factors of interest. For all models, intercepts were modeled as random effects, and slopes were modeled as fixed effects. The same specifications applied to models predicting nighttime drinking levels; the only difference was that nighttime number of drinks was the dependent variable instead of DTC motivation.

3. Results

3.1 Descriptive Statistics

Participants reported a mean of 4.4 ($SD = 3.0$) nighttime drinking episodes and consumed a mean of 6.2 ($SD = 5.3$) drinks per episode. Descriptive statistics for TREs and aggregated daily variables are presented in Table 1. The intra-class correlation for episode-specific reports of DTC motivation was .49, indicating that about half of the variation was within-person, daily variation.

3.2 Multi-level regression analyses

Table 2 shows the model results. Results from step 1 indicated that DTC motivation was higher on days characterized by relatively higher negative affect and avoidance coping and relatively lower levels of positive affect. Daily active coping was unrelated to DTC motivation. Regarding the person-level predictors, average levels of DTC motivation were higher among individuals with higher levels of TREs, aggregate negative affect, and aggregate avoidance coping and lower among individuals with higher aggregate positive affect.

The 2-way interaction effects were examined in Step 2. There was only one significant interaction involving the daily predictors of DTC motivation. Consistent with prediction, the within-person association between daily avoidance coping and episode-specific DTC motivation was stronger for individuals reporting higher aggregate negative affect (see Figure 1; high and low levels of aggregate negative affect correspond to ± 1 SD from the mean). Tests of these simple slopes indicated that the daily coping-DTC motivation slope was significant for individuals with high ($b = .050$, $SE = .014$, $p < .001$, 95% CI = .023 to .077), but not low ($b = .002$, $SE = .014$, $p = .878$, 95% CI = $-.030$ to .026) levels of aggregate negative affect. The only other significant interaction found in this block involved TREs and

aggregate negative affect; here we found that the positive association between aggregate negative affect and average levels of DTC motivation was stronger for individuals with stronger TREs (see Figure 2; high and low levels of TREs correspond to ± 1 SD from the mean). Tests of these simple slopes indicated that aggregate negative affect-DTC motivation slope was significant both for individuals with high ($b = .351$, $SE = .033$, $p < .001$, 95% CI = .287 to .417) and low ($b = .174$, $SE = .029$, $p < .001$, 95% CI = .117 to .231) levels of TREs.

Among the 3-way interactions included in step 3, only two were significant. These effects are shown in Figures 3 and 4 (high and low levels of the moderator variables correspond to ± 1 SD from the mean). Figure 3 shows the association between daily negative affect and DTC motivation as function of TREs and aggregate avoidance coping. Follow-up probing indicated that among individuals with low levels of aggregate avoidance coping, there was a marginally significant moderating effect for TREs (in the predicted direction) on the within-person daily negative affect-DTC motivation association ($b = .033$, $SE = .018$, $p = .061$, 95% CI = $-.002$ to $.067$). Specifically, among individuals with lower levels of aggregate avoidance coping, high TRE individuals showed stronger positive (less negative) daily negative affect-DTC motivation associations. In contrast, among individuals with higher levels of aggregate avoidance coping, the moderating effect of TREs was not significant ($b = -.017$, $SE = .017$, $p = .319$, 95% CI = $-.051$ to $.017$) and in the direction opposite to prediction.

Figure 4 shows the association between daily avoidance coping and DTC motivation as a function of TREs and aggregate negative affect. Follow-up probing indicated that among individuals with low levels of aggregate negative affect, there was a marginally significant moderating effect for TREs (in the predicted direction) on the within-person daily avoidance coping-DTC motivation association ($b = .025$, $SE = .013$, $p = .056$, 95% CI = $-.006$ to $.050$). Specifically, among individuals with lower levels of aggregate negative affect, high TRE individuals showed stronger positive (less negative) daily avoidance coping-DTC motivation associations. In contrast, among individuals with higher levels of aggregate negative affect, the moderating effect of TREs was not significant, ($b = -.019$, $SE = .012$, $p = .118$, 95% CI = $-.043$ to $.005$) and in the direction opposite to prediction.

Finally, we examined whether the proposed antecedents of DTC motivation showed the same pattern of effects in predicting drinking level. The results are shown in Table 3. At the day level, only positive affect was a significant predictor of drinking amount. At the person level, TREs, aggregate negative affect, and aggregate active coping were significant predictors of drinking level. There were no significant 2-way interactions predicting drinking level, but there was a significant daily negative affect \times daily avoidance coping \times TRE interaction, the form of which is shown in Figure 5 (high and low levels of the moderator variables correspond to ± 1 SD from the mean). Follow-up probing indicated that the interaction between daily negative affect and avoidance coping was significant neither among low TRE individuals ($b = -.746$, $SE = .495$, $p = .132$, 95% CI = -1.716 to $.225$) nor high TRE individuals ($b = .448$, $SE = .325$, $p = .168$, 95% CI = $-.189$ to 1.085).

4. Discussion

4.1 Unique effects of affect, coping and TREs in predicting DTC motivation

We found that relative daily levels of negative affect, positive affect, and use of avoidance coping were uniquely related to episode-specific levels of DTC motivation. The results for daily affect replicate findings from previous daily studies (e.g., Arbeau et al., 2011), whereas the effect of daily avoidance coping extends previous work. The unique effects of daily negative affect and avoidance coping on episode-specific reports of DTC motivation suggest that coping-motivated drinking might serve as both a “self-medication” strategy in terms of attempting to reduce heightened negative emotions and a cognitive strategy to shift attention away from unwanted or ruminative thoughts.

We also found support for our predicted person-level associations. We replicated core findings concerning the unique (additive) effects of avoidance coping, tension reduction expectancies, and negative affect (Cooper et al., 1995), as well as positive affect (Arbeau, et al., 2011), in predicting average levels of DTC motivation. The consistency of results for the person-level associations found across studies using different methodologies increases our confidence in the core tenets of the model at this level of analysis.

We did not find support for the role of daily active coping at either level of analysis. Although active coping might indeed be unrelated to coping-related drinking, our null findings might be due to its complex effects that may not have been captured by our models. One possibility is that at the daily level, when active coping is successful in addressing problems, it reduces the need for coping-motivated drinking, and when it is unsuccessful, it leads to increased coping-motivated drinking. Future research is needed to evaluate these possibilities.

4.2 Interaction effects predicting DTC motivation

We found only limited support for the predicted synergistic effects of the antecedent factors across levels of analysis. We did find that individuals with higher average levels of negative affect showed stronger positive within-person associations between daily levels of avoidance coping and DTC motivation (see Figure 1). One possibility is that for high negative affect individuals, avoiding everyday hassles (e.g., shifting attention, distracting oneself) proves to be a more challenging task due to depleted self-control resources caused by ongoing efforts to regulate chronically high levels of negative affect (Muraven & Baumeister, 2000). Thus, such individuals are more likely to resort to alcohol to augment their avoidance coping efforts.

We also found two significant three-way cross-level interactions, though neither effect was entirely consistent with our predictions. Specifically, we found that the predicted moderating effect of tension reduction expectancies (i.e., that individuals with strong expectancies would show stronger positive effects of the daily antecedents – daily negative affect and avoidance coping – on DTC motivation) was marginally significant only among individuals with low levels of aggregate negative affect and aggregate avoidance coping. Given the unpredicted nature of these findings and the possibility that they might simply reflect

spurious effects, we hesitate to speculate on possible explanations. Future research is needed to further understand these effects.

Finally, consistent with past research (Cooper et al., 1995) and predictions, we did find a person-level interaction between aggregate negative affect and tension reduction expectancies (see Figure 2). Specifically, the association between average levels of negative affect and DTC motivation was stronger in the positive direction for individuals with stronger tension reduction expectancies. Though not novel, this finding does help to rule out the possibility that our null or counter-intuitive cross-level interaction effects are not entirely due to sample differences across studies.

In general, our lack of predicted interactive effects across level of analysis could indicate that the processes of interest are not the same across the levels of analysis (i.e., interaction effects found exclusively at the person level of analysis do not necessarily generalize when one or more of these factors are measured at the daily level of analysis). For example, previous findings showing that individual differences in tension reduction expectancies moderated the associations between individual differences in negative affect and avoidance coping and DTC motivation (e.g., Cooper et al., 1995) only provide information about the associations between mean levels of variables. They do not shed light on how high and low tension reduction expectancy individuals differ with respect to the level of DTC motivation on drinking days characterized by relatively low and high levels of avoidance coping and negative affect. Further research is needed to understand the ways in which the mechanisms at work for the antecedent effects of negative affect and avoidance coping are specific to the level of analysis. In addition, given that research has shown expectancies to exhibit state-like, within-person variation (e.g., Wall, Hinson, McKee, & Goldstein, 2001), researchers should also examine how day-level variation in tension-reduction expectancies might inform our understanding of these processes.

4.3 Differential findings in predicting drinking level

We also found a discrepant pattern of associations in predicting drinking level compared to DTC motivation. For example, at the daily level of analysis the number of drinks consumed was unrelated to negative affect and avoidance coping (which were positively related to DTC motivation) and positively related to positive affect (which was negatively related to DTC motivation). We also found a complex cross-level interaction involving daily levels of negative affect and avoidance coping and individual differences in tension reduction expectancies (Figure 5); this effect also did not parallel any of the interactive effects found in predicting DTC motivation. Given its unpredicted form, we hesitate to interpret it. However, the larger point we hope to convey is that the lack of convergence between the models predicting drinking level versus DTC motivation underscores the importance of teasing out reasons for drinking (i.e., drinking motives) from actual drinking level (i.e., amount consumed). Drinking level is comprised of drinking for multiple reasons and has been more closely tied to social and enhancement reasons among college drinkers (e.g., Read, Wood, Kahler, Maddock, & Palfai, 2003; Simons et al., 2005); the greater prevalence of social and enhancement drinking among college students (e.g., Merrill et al., 2014) might explain the relatively stronger association between drinking and positive affect in our study.

We are not asserting that drinking level is not important; indeed it is robustly related to drinking-related problems, and this has been demonstrated at the drinking episode level of analysis (e.g., Neal & Fromme, 2007). Rather, our goal was to shed light on the proximal antecedents of DTC motivation, which our results suggest has a more circumscribed set of antecedents compared to overall drinking level.

4.4 Limitations and conclusions

Several limitations of our study should be noted. Most importantly, causality cannot be inferred given our correlational design and generalization of our findings should be tempered given our focus on a single university. Another drawback concerns the temporal lags between our daily predictor and our drinking outcomes, which in some situations might have been several hours. One possibility is that in these intervals affective changes might have occurred and/or problems associated with coping may have lost relevance, possibly attenuating some of our observed effects. Ideally affect and coping would be assessed close to or simultaneous with the initiation of drinking.

These limitation notwithstanding, the results from our study support the notion that DTC motivation is a reactive process and related to proximal levels of risk factors such as negative affect and avoidance coping. Identification of the proximal risk factors could help inform clinical intervention. For example, teaching individuals the coping skills and problem solving techniques to handle the stressful situations that might otherwise lead them to drink might be more efficacious than altering more stable, trait-like risk factors that have been the focus of studies exploring the antecedents of DTC motivation in the past.

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Abbreviations

DTC	Drinking to cope
TRE	Tension reduction expectancies
SLAR	Social learning affect-regulation

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Highlights

- Daily negative mood and avoidance coping uniquely predict daily drinking to cope.
- Global negative mood modifies effect of daily avoidance coping on drinking to cope.
- Tension reduction expectancies did not moderate the day-level effects.

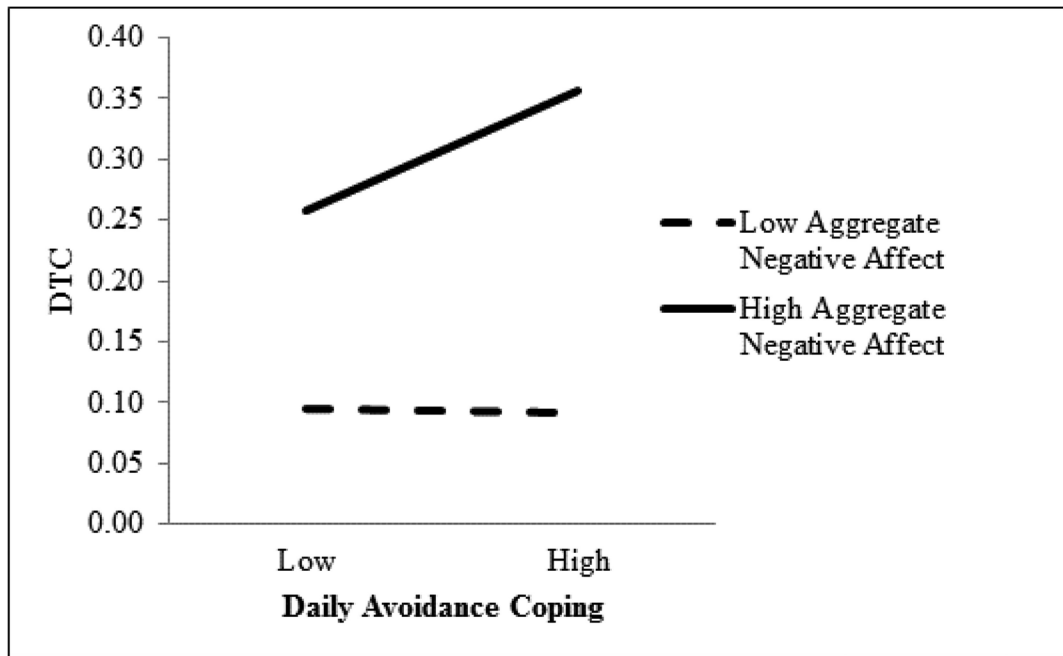


Figure 1. Drinking to cope (DTC) motivation as a function of daily avoidance coping and aggregate negative affect

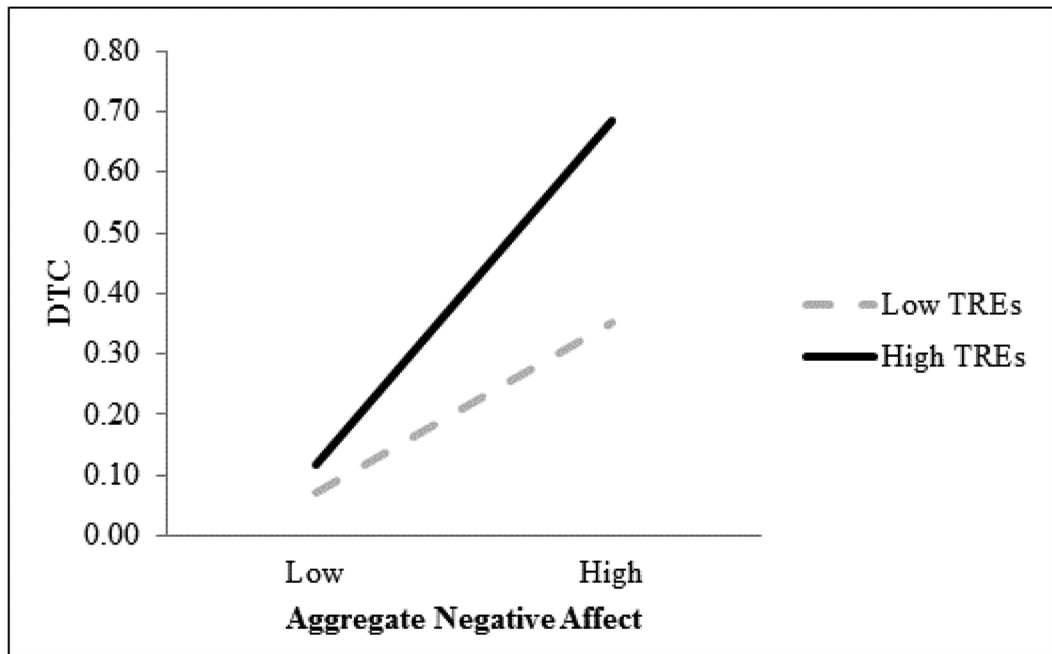


Figure 2. Drinking to cope (DTC) motivation as a function of aggregate negative affect and tension reduction expectancies (TREs).

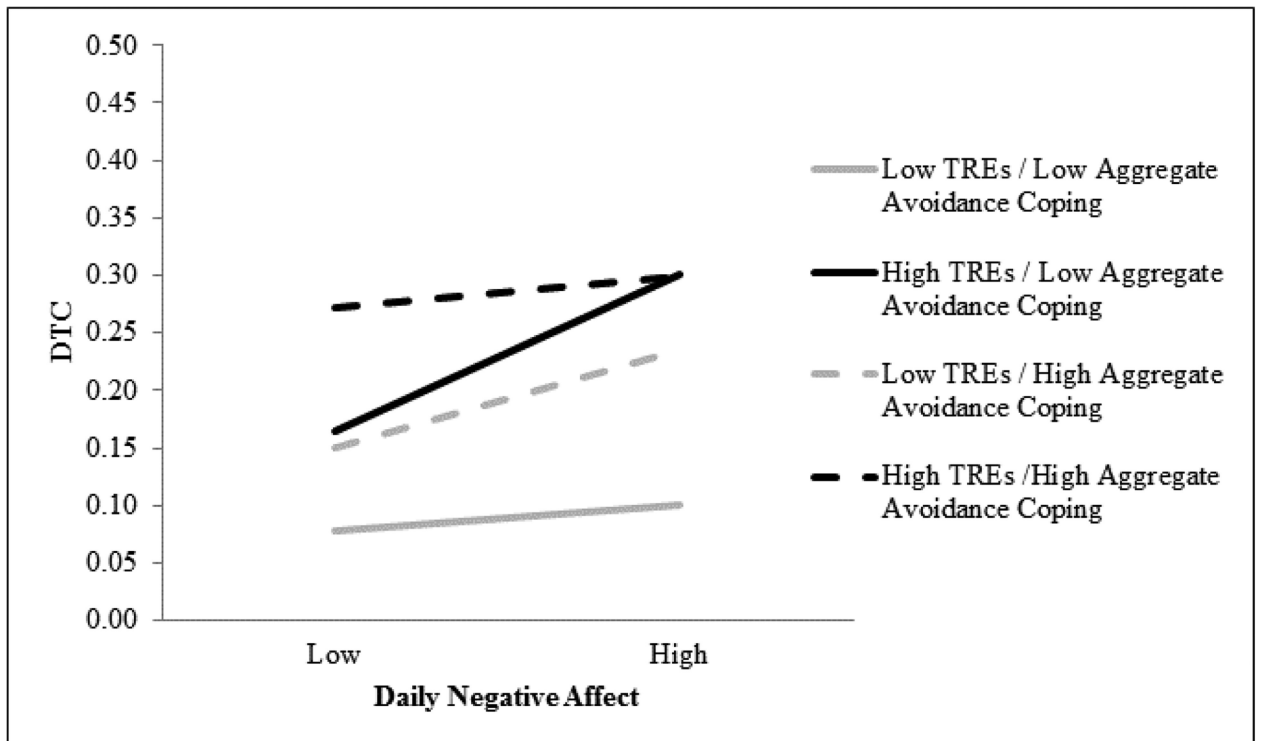


Figure 3. Drinking to cope (DTC) motivation as a function of daily negative mood, aggregate avoidance coping and tension reduction expectancies (TREs).

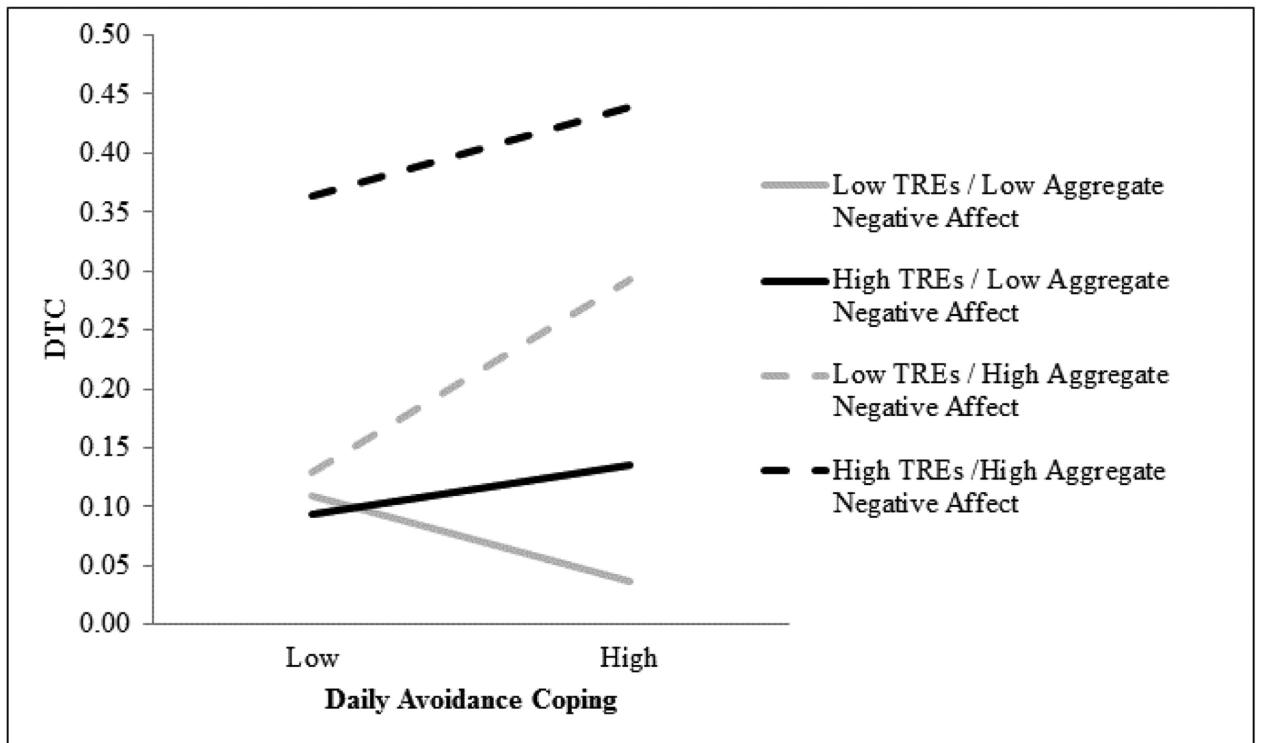


Figure 4. Drinking to cope (DTC) motivation as a function of daily avoidance coping, aggregate negative affect and tension reduction expectancies (TREs).

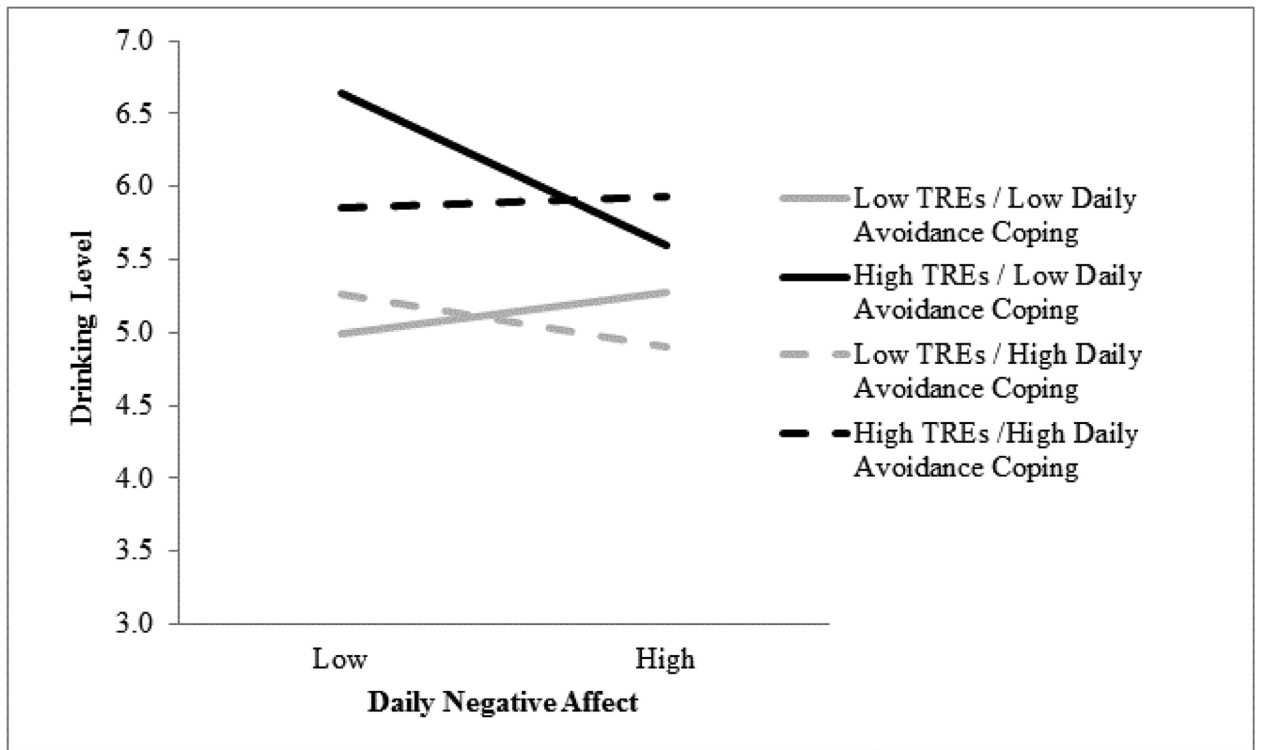


Figure 5. Daily drinking levels as a function of daily negative mood, daily avoidance coping and tension reduction expectancies (TREs)

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Table 1

Descriptive Statistics and Correlations

	M	SD	1	2	3	4	5	6
1. Negative affect	1.42	.44						
2. Positive affect	2.97	.74	-.23**					
3. Active coping	1.00	.82	.20**	.15**				
4. Avoidance coping	.62	.64	.40**	.00	.46**			
5. Drinking to cope	.20	.27	.40**	-.20**	.07	.28**		
6. TREs	3.92	1.20	.08*	-.04	.00	.05	.27**	
7. Drinking level	5.38	3.37	.06	.01	-.11**	-.05	.16**	.15**

Note. TRE: tension reduction expectancy. All variables except TRE are aggregated (averaged) daily levels.

N = 722

*
p .05

**
p .01.

Table 2

Results of multi-level regression analysis predicting drinking to cope motivation

	B	SE	p	95% CI	
				LL	UL
Daily level (step 1)					
Weekend	.03	.01	<.01	.01	.06
Daytime drinks	.00	.00	.33	.00	.01
Negative affect	.05	.01	<.01	.03	.08
Positive affect	-.02	.01	.02	-.03	.00
Active coping	.00	.01	.87	-.01	.01
Avoidance coping	.03	.01	<.01	.02	.05
Person level					
Tension reduction expectancies (TRE)	.05	.01	<.01	.04	.06
Aggregate negative affect	.24	.02	<.01	.20	.29
Aggregate positive affect	-.04	.01	<.01	-.06	-.02
Aggregate active coping	-.02	.01	.07	-.05	.00
Aggregate avoidance coping	.07	.02	<.01	.03	.10
Two-way interactions (step 2)					
Negative affect × avoidance coping	-.02	.02	.23	-.06	.01
Negative affect × TRE	.01	.01	.51	-.01	.03
Negative affect × aggregate avoidance coping	-.01	.02	.51	-.06	.03
Negative affect × aggregate negative affect	.03	.03	.29	-.03	.09
Avoidance coping × TRE	.00	.01	.78	-.01	.02
Avoidance coping × aggregate avoidance coping	.01	.02	.59	-.03	.05
Avoidance coping × aggregate negative affect	.06	.02	<.01	.02	.11
TRE × aggregate avoidance coping	-.02	.01	.13	-.04	.01
TRE × aggregate negative affect	.08	.02	<.01	.04	.11
Aggregate negative affect × aggregate avoidance coping	-.02	.03	.41	-.07	.03
Three-way interactions (step 3)					
Negative affect × aggregate negative affect × TRE	.03	.02	.21	-.02	.08
Negative affect × avoidance coping × TRE	-.02	.02	.35	-.05	.02
Negative affect × aggregate avoidance coping × TRE	-.04	.02	.04	-.08	.00
Avoidance coping × aggregate negative affect × TRE	-.05	.02	<.01	-.09	-.02
Avoidance coping × aggregate avoidance coping × TRE	.02	.02	.26	-.01	.05
Aggregate avoidance coping × aggregate negative affect × TRE	.00	.02	.97	-.05	.05

Note. 95%CI = 95% confidence interval; LL = lower level; UL = upper level.

Table 3

Results of multi-level regression analysis predicting drinking amount

	B	SE	p	95% CI	
				LL	UL
Daily level (step 1)					
Weekend	1.90	.17	<.01	1.57	2.23
Daytime drinks	.23	.03	<.01	.16	.30
Negative affect	-.05	.18	.78	-.41	.30
Positive affect	.29	.11	.01	.07	.51
Active coping	-.04	.10	.72	-.24	.16
Avoidance coping	-.20	.12	.11	-.44	.05
Person level					
TRE	.42	.10	<.01	.23	.62
Aggregate negative affect	.96	.32	<.01	.34	1.59
Aggregate positive affect	.27	.18	.12	-.07	.62
Aggregate active coping	-.62	.17	<.01	-.96	-.28
Aggregate avoidance coping	-.20	.23	.39	-.65	.26
Two-way interactions (step 2)					
Negative affect × avoidance coping	.13	.28	.65	-.42	.67
Negative affect × TRE	-.14	.15	.32	-.43	.14
Negative affect × aggregate avoidance coping	.16	.32	.62	-.47	.78
Negative affect × aggregate negative affect	-.45	.43	.29	-1.30	.39
Avoidance coping × TRE	.01	.11	.90	-.21	.23
Avoidance coping × aggregate negative affect	-.24	.32	.44	-.87	.38
Avoidance coping × aggregate avoidance coping	-.03	.26	.92	-.54	.49
TRE × aggregate negative affect	.01	.25	.97	-.47	.49
TRE × aggregate avoidance coping	.00	.17	.98	-.34	.33
Negative aggregate affect × aggregate avoidance coping	-.54	.38	.16	-1.30	.21
Three-way interactions (step 3)					
Negative affect × aggregate negative affect × TRE	-.02	.36	.97	-.72	.69
Negative affect × avoidance coping × TRE	.52	.25	.04	.03	1.01
Negative affect × aggregate avoidance coping × TRE	-.04	.29	.88	-.61	.52
Avoidance coping × aggregate negative affect × TRE	-.16	.27	.55	-.70	.38
Avoidance coping × aggregate avoidance coping × TRE	.04	.25	.89	-.45	.52
Aggregate avoidance coping × aggregate negative affect × TRE	-.22	.35	.53	-.92	.47

Note. 95%CI = 95% confidence interval; LL = lower level; UL = upper level.