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Short Communication

Emotion differentiation and alcohol-related problems: The mediating role of urgency

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HIGHLIGHTS

- Tested associations between emotion differentiation, urgency, & alcohol problems
- Negative urgency mediated negative emotion differentiation & alcohol problems.
- Positive emotion differentiation exhibited a direct effect on alcohol problems.
- Deficits in differentiating negative emotion may increase behavioral dysregulation.

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ABSTRACT

Deficits in emotional and behavioral regulation figure prominently in etiological models of alcohol-related problems. This study tests a model linking poor differentiation of emotion to alcohol-related problems via urgency. The sample consisted of 102 undergraduates between the ages 18 and 24 who reported moderate to heavy alcohol consumption. As hypothesized, negative urgency mediated the relationship between negative emotion differentiation and alcohol-related problems. However, contrary to hypothesis, positive urgency was not associated with either positive emotion differentiation or alcohol-related problems and the indirect effect of positive emotion differentiation via positive urgency was not significant. Instead, positive emotion differentiation exhibited a significant direct effect on alcohol-related problems. This study provides an initial examination of connections between specificity in labeling emotions, behavioral disinhibition, and problematic alcohol use. These findings suggest that poor differentiation of negative emotion may foster impulsive behavior when negatively aroused. Whereas, impulsive behavior when positively aroused may reflect heightened sensitivity to positive reinforcement, which may not be related to reflective processes underlying emotion differentiation.

1. Introduction

Collegiate alcohol misuse is linked to the development of alcohol use disorders, as over 150,000 college students develop alcohol-related problems each year (Hingson, Heeren, Winter, & Wechsler, 2005), with nearly 1 in 4 (24%) males and 1 in 8 (13%) females meeting diagnostic criteria for either alcohol abuse or dependence (Slutske, 2005). Affective functioning plays a prominent role in several etiological models of substance use (e.g., Kassel et al., 2010; McCarthy, Curtin, Piper, & Baker, 2010; Simons, Wills, & Neal, in press). These models suggest that individuals with poor affect regulation show a diminished capacity to handle intense emotion states and often rely upon maladaptive coping strategies, such as substance or alcohol use, to manage their emotions (Lavallo, 2007; Spence & Courbasson, 2012). Thus, identifying factors that explain adaptive and maladaptive affect regulation is important to fully understand the etiology of problematic alcohol consumption.

One promising factor related to emotion regulation is emotion differentiation. Emotion differentiation is the ability to make fine grained distinctions between similarly valenced emotion states (Feldman Barrett, 2004). Individuals differ greatly in their ability to differentiate their affective experiences. Some tend to describe their emotional experiences in more global terms, such as feeling "good" or feeling "bad" and find it difficult to make more subtle distinctions, while others make these nuanced differentiations easily. These differences have been shown to impact the ability to regulate emotions and consequential behaviors (Feldman Barrett, Gross, Conner Christensen, & Benvenuto, 2001; Tugade, Fredrickson, & Feldman Barrett, 2004). In support of this, emotional differentiation has been shown to moderate associations between negative emotion and alcohol consumption (Kashdan, Ferssizidis, Collins, & Muraven, 2010), anger and aggressive actions (Pond et al., 2012), as well as the association between rumination and non-suicidal self-injurious

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behaviors (Zaki, Coifman, Rafaeli, Berenson, & Downey, 2013). This research suggests that the inability to differentiate emotion may foster maladaptive behavior when emotionally aroused. This pattern of maladaptive response to emotion resembles an established construct termed urgency (Cyders & Smith, 2008).

Hence, it is possible that the inability to differentiate emotions may be related to urgency, defined as rash action in response to intense emotion. Along these lines, research on alexithymia, a construct related to deficits in identifying and describing emotions, shows that these deficits are positively associated with urgency, with urgency often fully mediating the relationship between alexithymia and problematic outcomes, including alcohol consequences (Gaher, Hofman, Simons, & Hunsaker, 2013; Shishido, Gaher, & Simons, 2013). Moreover, alexithymia has been shown to mediate the relationship between childhood maltreatment (Gaher, Arens, & Shishido, 2013) as well as trauma history (Gaher, Hofman, et al., 2013) and urgency, suggesting that deficits in emotional understanding may underlie urgent responding. Furthermore, positive and negative urgency have each been shown to be related to alcohol-related problems in young adults (Cyders et al., 2010; Karyadi & King, 2011). Taken together, it is plausible that positive and negative urgency may mediate the relationship between the differentiation of positive and negative emotions and alcohol-related problems.

The current study tested whether urgency mediates the relationship between emotion differentiation and alcohol-related problems. Differentiation of emotions was calculated from repeated measures of emotion in the natural environment rather than retrospective self-report. Emotion differentiation was expected to be inversely associated with urgency and alcohol problems. Negative urgency was hypothesized to mediate the association between negative emotion differentiation and alcohol-related problems. Positive urgency was hypothesized to mediate the association between positive emotion differentiation and alcohol-related problems.

2. Method

2.1. Participants

Participants were 102 undergraduate students (52% female) between the ages 18 and 24 ($M = 20.34$, $SD = 1.50$) who reported moderate to heavy alcohol consumption (i.e., ≥12 drinks per week for women and ≥16 drinks per week for men; Sanchez-Craig, Wilkinson, & Davila, 1995). Ninety-four percent of the participants were white, 3% multiracial, 1% Native American, and 2% other or do not wish to respond. Ninety-six percent were non-Hispanic. Participants were recruited through e-mail and student newspaper advertisements. Two other articles have been published from portions of this dataset as part of a larger study investigating factors associated heavy drinking (Simons, Dvorak, Batien, & Wray, 2010; Simons, Maisto, & Wray, 2010).

2.2. Procedure

Participants completed a screening survey online that included the baseline measures and then were recruited into the experience sampling study. Participants were trained to use a Palm Tungsten E2 PDA running PMAT (Weiss, Beal, Lucy, & MacDermid, 2004), modified by Joel Swendsen and CNRS, France. The program generated prompts for participants to complete brief assessments at 8 random times within 2-hour blocks from 10:00 a.m. and 2:00 a.m. The random prompts inquired about emotion in the last 30 min. Participants carried the PDAs for 28 days. The response rate to the random prompts was good with participants completing 68% of the random prompts. The current study focuses on the baseline assessment and between-person differences. However, the emotion differentiation measure was calculated from the experience sampling data described below and used in this analysis as a trait level variable. Further detail on procedure is in Simons et al. (2010).

2.3. Measures

2.3.1. Experience sampling measures

Affect in the previous 30 min was assessed by items from subscales of the PANAS-X (Watson & Clark, 1994) and Larsen and Diener's affect circumplex model (Larsen & Diener, 1992). Positive affect was assessed by 5-items from the joviality subscale: happy, joyful, excited, energetic, and enthusiastic. Negative affect was assessed by 9-items representing three dimensions: sadness (3 items: sad, blue, downhearted), anxiety (3 items: nervous, jittery, anxious), and hostility (3 items: angry, hostile, irritable). Items were rated on 11-point scales ranging from 1 = not at all to 11 = extremely. Previous studies support the internal consistency and criterion validity of these and comparable affect scales assessed by experience sampling (Armeli et al., 2003; Csikszentmihalyi & Larson, 1992; Simons, Gaher, Oliver, Bush, & Palmer, 2005).

2.3.1.1. Positive and negative emotion differentiation. We created between-person variables from the experience sampling data by calculating the intraclass correlation (ICC with absolute agreement) of the positive and negative emotion terms for each participant across daytime in situ assessments (Kashdan et al., 2010; Pond et al., 2012). This calculates the percent of the total variation in emotion ratings due to variation across assessment time points vs. variability between emotion terms within time points. The inverse was utilized, so that higher scores equal greater differentiation between emotions. The criterion validity of this approach is supported by recent research indicating significant associations between this measure and the difficulty identifying feelings subscale of the Toronto Alexithymia Scale—20 (Erbas, Ceulemans, Lee Pe, Koval, & Kuppens, 2014).

2.3.2. Baseline measures

2.3.2.1. Alcohol-related problems. The Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ; Kahler, Strong, & Read, 2005) consists of 24 alcohol-related problems, such as "I have taken foolish risks when I have been drinking." Participants indicate if they experienced each problem in the past 6 months (1 = yes, 0 = no). The scale was developed by Rasch modeling and is an efficient measure of alcohol problem severity.

2.3.2.2. Positive and negative urgency. Positive urgency was measured using the 14-item Positive Urgency Measure (Cyders & Smith, 2007), that assesses the tendency to act rashly in response to positive mood states. Negative urgency was assessed using the 12-item negative urgency subscale of the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001), which assesses the tendency toward rash action when distressed.

3. Results

3.1. Descriptive statistics

Descriptive statistics and the correlation matrix are presented in Table 1. Negative emotion differentiation exhibited significant negative associations with both negative urgency and alcohol-related problems. Positive emotion differentiation showed a moderate negative association with alcohol-related problems but was not associated with positive urgency. Both positive urgency and negative urgency were associated with alcohol-related problems as expected. Gender was not significantly correlated with the other measures and hence omitted from the analyses.

3.2. Path analysis

The path model was tested in Stata 12 (StataCorp, 2011) with full information maximum likelihood estimation, which allowed the inclusion of cases with missing data. Missing data are assumed to be missing at

Table 1
Descriptive statistics and correlation matrix ($N = 102$).

Variables	M	(SD)	1	2	3	4	5	6
1. Gender			–					
2. Negative urgency	2.26	0.62	−.09	.88				
3. Positive urgency	1.72	0.62	−.02	.46**	.94			
4. Negative emotion differentiation	0.74	0.16	.13	−.26*	−.09	–		
5. Positive emotion differentiation	0.41	0.16	.13	−.05	−.01	.34**	–	
6. Alcohol-related problems	10.46	6.29	.04	.40**	.29**	−.27*	−.24*	.91

Note: Gender (men = 1, women = 0). Alcohol-related problems = B-YAACQ total scores.* $p < .05$, ** $p < .001$. Cronbach's alphas are on the diagonal.

random, but not completely random (Enders & Bandalos, 2001). The initial model included an indirect pathway from positive emotion differentiation to alcohol-related problems via positive urgency and an indirect pathway from negative emotion differentiation to alcohol-related problems through negative urgency. The positive and negative urgency disturbance terms were allowed to covary. The initial model was not a good fit to the data χ^2 (4, $N = 102$) = 9.09, $p = 0.059$, CFI = 0.90, RMSEA = 0.112 (Hu & Bentler, 1999). Upon examining modification indices, a direct path from positive emotion differentiation to alcohol-related problems was added and the model was re-estimated. This model fits the data well χ^2 (3, $N = 102$) = 2.82, $p = 0.420$, CFI = 1.00, RMSEA = 0.000 (see Fig. 1). We also tested a direct path from negative emotion differentiation to alcohol-related problems ($\beta = -0.14$, $p = .156$). This did not improve the model fit $\Delta\ \chi^2$ (1, $N = 102$) = 1.982, $p = 0.159$, and thus was excluded from the final model.

The hypothesized indirect effects were calculated using bias-corrected bootstrapped confidence intervals (MacKinnon, Lockwood, & Williams, 2004). The results indicated a significant indirect effect from negative emotion differentiation to alcohol-related problems via negative urgency ($ab = -0.13$, 95% CI [−0.29, −0.026]), as hypothesized. However, contrary to hypothesis the indirect effect of positive emotion differentiation via positive urgency was not significant ($ab = -0.004$, 95% CI [−0.065, 0.025]) and positive urgency was not associated with either positive emotion differentiation nor alcohol problems. Instead, positive emotion differentiation exhibited a significant direct effect on alcohol-related problems ($\beta = -0.22$, $p < .01$).

4. Discussion

The hypotheses were partially supported. Negative emotion differentiation was associated with both negative urgency and alcohol problems. There was a significant indirect effect of negative emotion differentiation to alcohol-related problems via negative urgency. These results suggest that the inability to make fine-grained distinctions regarding the experience of negative emotions contributes to behavioral disinhibition when in a state of high emotional arousal. The inverse relationship between negative emotion differentiation and alcohol-related problems was fully mediated by negative urgency. This suggests that poor negative emotion differentiation may be associated with alcohol-related problems, primarily due to its effects on disinhibited behavior when negatively aroused. This provides a conceptual replication of previous findings indicating that negative urgency mediates the association between alexithymia and alcohol-related problems (Shishido et al., 2013) and is consistent with research showing that affect dysregulation increases risk of alcohol-related problems (Kaiser, Milich, Lynam, & Charnigo, 2012; Wray, Simons, Dvorak, & Gaher, 2012).

Contrary to hypothesis, the indirect effect of positive emotion differentiation on alcohol-related problems via positive urgency was not significant. Instead, positive emotion differentiation had a direct inverse association with alcohol problems. The mechanism underlying this effect is unclear. However, superior emotion identification has been shown to aid psychological flexibility and adaptive self-regulation (Feldman Barrett et al., 2001; Kang & Shaver, 2004; Kashdan et al., 2010); thus, positive emotion differentiation may influence alcohol-related problems through other constructs indicative of adaptive functioning. Indeed, positive emotion differentiation was not associated with either positive or negative urgency.

In contrast, negative emotion differentiation was specifically associated with negative urgency. This pattern is somewhat surprising given previous research indicating significant associations between alexithymia and positive urgency (Shishido et al., 2013) and the observed correlations between positive and negative differentiation as well as between positive and negative urgency. Though speculative,

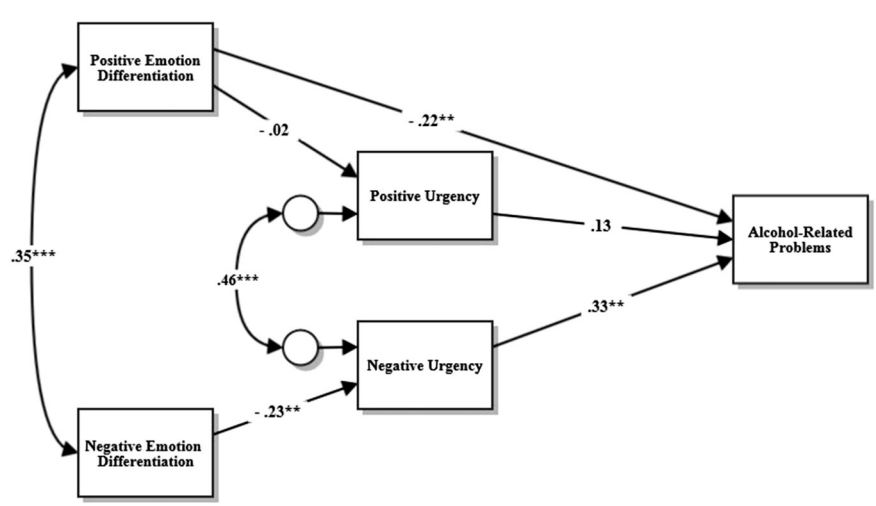

Fig. 1. Structural model ($N = 102$). All values are standardized coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

negative urgency may reflect, in part, intolerance for negative arousal and habitual maladaptive responses when negatively aroused (Gaher, Hofman et al., 2013). Differentiation of negative emotion may foster adaptive coping and understanding of feeling states, making them less threatening. In contrast, impulsive behavior when positively aroused may reflect relatively automatic behavioral activation effects (Quilty & Oakman, 2004), which may not be related to reflective processes underlying emotion differentiation. Alternatively, this could possibly be an artifact of the relatively limited dimensionality of positive emotions assessed in this study. Future research is needed to better tease apart these relationships.

Interpretation of our findings should be understood in light of limitations. First, the cross-sectional correlational design limits confidence in the hypothesized mediation model. Previous research indicates that alexithymia mediates connections between both child maltreatment and traumatic stress and urgency (Gaher, Hofman et al., 2013; Gaher, Arens, et al., 2013). This supports the hypothesized model whereby emotional differentiation leads to urgency rather than vice versa. However, further research is needed to examine whether impulsive behavior when negatively aroused may also interfere with reflective processes underlying the labeling of feeling states. Second, the small sample restricted the inclusion of additional variables in the model, such as alcohol consumption or gender. Finally, generalizability to samples with other drinking and demographic characteristics is unknown. Nonetheless, the study provides an interesting examination of connections between specificity in labeling emotions, behavioral disinhibition, and problematic alcohol use.

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Contributors

Dr. Simons designed the study and collected the data. Mr. Emery prepared the first draft of the manuscript. Dr. Simons and Mr. Emery conducted the data analyses and prepared results. All authors contributed to and approved the final manuscript.

Conflict of Interest

The authors have no conflicts of interest.

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