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Alexithymia disrupts emotion regulation processes and is associated with greater negative affect and alcohol problems

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Abstract

Objective: Alexithymia is common among people who abuse alcohol, yet the mechanisms by which alexithymia exerts its influence remain unclear. This analysis tested a model whereby the three subscales of the Toronto Alexithymia Scale exert an indirect effect on alcohol problems through difficulties with emotion regulation and psychological distress.

Method: Men and women (n=141) seeking alcohol use disorder (AUD) treatment completed the Toronto Alexithymia Scale, the Difficulties with Emotion Regulation Scale, the Brief Symptom Inventory, the Short Inventory of Problems, and the Alcohol Dependence Scale.

Results: The Difficulty Identifying Feelings subscale of the Toronto Alexithymia Scale was positively associated with alcohol problems through emotion dysregulation and psychological distress. The other two subscales, Difficulty Describing Feelings and Externally-oriented Thinking, were not associated with any other variables.

Conclusion: People with alexithymia may consume alcohol to help regulate undifferentiated states of emotional arousal. Given the prevalence of alexithymia among people who abuse alcohol, treatment supplements that enhance the identification of emotions are needed.

Keywords

Alexithymia; emotion regulation; alcohol; alcohol use disorder; psychological distress; path model

Introduction

Alcohol use disorder (AUD) is a persistent threat to public health with an estimated 30 million adults in the United States meeting diagnostic criteria for AUD in 2013 (Grant et al., 2017). Most models of AUD specify that drinking is motivated by a desire to regulate affect (Baker et al., 2004; Cooper et al., 1995), especially negative affect (Koob, 2000). More recently, considerable attention has been devoted to investigating factors that

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mediate the relationship between emotion and drinking. Alexithymia is one such factor. Alexithymia is a clinical construct reflecting deficits in emotional processing, including difficulties identifying and describing feelings, an inability to differentiate nuances of feelings, restrained and limited imaginative processes, and an externally-oriented cognitive style (Sifneos, 1973). Individuals with AUD are more likely to have alexithymia (Parker, Keefer, Taylor, & Bagby, 2008), which may reduce the effectiveness of psychosocial treatments for AUD by interfering with their ability to access emotions (Linn et al., 2020). Over the past decade, two literature reviews have concluded that between 30–67% of individuals with AUD meet or exceed the threshold scores on measures of alexithymia (Cruise & Becerra, 2018; Thorberg, Young, Sullivan, & Lyvers, 2009). Although ample research has examined the co-occurrence of alcohol problems and alexithymia, to date, a model of how these two problem areas might be related has not been proposed.

Pathways linking alexithymia and alcohol problems are not well understood. A recent review suggests an indirect association between alexithymia and alcohol problem severity that may be mediated by several psychological constructs (e.g., alcohol expectancy or craving; Cruise & Becerra, 2018). A potentially important psychological construct associated with both alexithymia and alcohol problems is emotion dysregulation (Stasiewicz et al., 2012). Emotion dysregulation is an impairment in one's ability to manage negative affect appropriately and constructively (Gross, 2014). Alexithymia may disrupt emotion regulation by reducing attention to emotions (van der Velde et al., 2013) or by increasing avoidance (Venta et al., 2013). Once emotion regulation is disrupted, a person may drink to help manage undifferentiated and unpleasant affective states. Thus, a careful reading of the current literature suggests a possible mediating role for emotion dysregulation in the relationship of alexithymia and substance use. Evidence of the mediating role of emotion dysregulation has been found in studies of alexithymia and alcohol craving (Khosravani et al., 2017) and alexithymia and smoking (Linn et al., 2020).

Although the co-occurrence of alexithymia, emotion dysregulation, and alcohol problems is well-established (Ghorbani et al., 2017; Khosravani et al., 2018), current research has not considered psychological distress, which has theoretical (Koob, 2000; Stasiewicz & Maisto, 1993) and empirical associations with both AUD and alexithymia (Connelly & Denney, 2007; Mikolajczak & Luminet, 2006). The current study fills this gap in the literature by articulating and testing a model of alexithymia and alcohol problems that considers both emotion dysregulation and psychological distress. Articulating and testing such a model is a critical first step towards developing an intervention for alexithymia, given that at present, there are no clinical interventions that specifically address alexithymia. Adding an alexithymia supplement to an existing psychosocial intervention for AUD, such as cognitive behavioral therapy, may serve to improve alcohol treatment outcomes. Given the status of cognitive-behavioral therapy as an evidence-based treatment for AUD (Miller & Wilbourne, 2002), increasing its success will help maximize clinical resources.

In this study, we proposed that the subscales of the Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994) are positively associated with emotion dysregulation and greater psychological symptoms and distress, both of which, in turn, would be associated with greater levels of alcohol problems and dependence. A model that articulates how

alexithymia may be related to alcohol problems has the potential to guide the development of intervention strategies for improving treatment outcomes among individuals with both alexithymia and alcohol problems.

Methods

Participants

A total of 180 men and women (aged 18–68) seeking outpatient treatment for AUD completed the screening assessment. Inclusion criteria were: a) a current DSM-5 diagnosis of AUD, moderate or severe, b) meeting criteria for a negative affect drinking profile (see Measures section), c) consuming any alcohol in the past 3 months, and d) living within commuting distance of the program site. Exclusion criteria included: a) severe mental illness (e.g., psychosis or active bipolar disorder; n=7 individuals excluded); b) changes in past three months in the dose or type of prescription medication that affects mood (e.g., antidepressants or anxiolytics; no individuals excluded), d) any drug use disorder, other than nicotine or mild cannabis dependence (n=26 individuals excluded), and e) being mandated to attend treatment (no individuals excluded). Additionally, six individuals were excluded because they required a different level of care (i.e., detoxification). Thus, the final sample size was 141 after accounting for 39 individuals who met exclusion criteria. The University at Buffalo Institutional Review Board approved study procedures and materials.

Procedures

Participants seeking treatment were recruited through radio and newspaper advertisements (i.e., direct recruitment) and calls to the Addiction Treatment Service (ATS), a publicly-funded outpatient substance abuse clinic at the University at Buffalo serving the western New York community. During the phone screen, interested individuals were assessed for initial eligibility and provided with a description of the research-based treatment program, which consisted of 12 sessions of cognitive-behavioral therapy for AUD originally developed for use in Project MATCH (Kadden et al., 1992). Then, individuals were scheduled for a baseline assessment with a trained research interviewer. The research interviewer obtained informed consent, confirmed eligibility criteria, and administered additional study measures. Participants were subsequently scheduled for their first treatment session approximately one week later. Six licensed therapists with a master's degree or higher were trained to administer the intervention and received weekly supervision by a research clinician with 15 years of experience conducting and supervising CBT interventions. Participants were remunerated for research assessments but not for treatment sessions. Data for the current analyses are derived from measures administered during the baseline interview.

Measures

Demographics.—Demographic characteristics, current status information (e.g., education, marital status, employment) and alcohol treatment history were obtained using a comprehensive background questionnaire administered during the baseline assessment.

Mini International Neuropsychiatric Interview (MINI).—The MINI (Sheehan et al., 1998) was used to assess for a partial list of DSM-5 Axis I diagnoses. The larger study from which these data are drawn began recruitment during the transition from DSM-IV to DSM-5. The DSM-5 version of the MINI was published two years following initiation of study recruitment. The substance use disorder modules were modified to reflect revised DSM-5 diagnostic criteria (i.e., the addition of the craving item). The sections evaluating alcohol use, drug use, depression, dysthymia, generalized anxiety, panic, social anxiety, and posttraumatic stress disorder were administered by trained research interviewers.

Inventory of Drug Taking Situations-Alcohol (IDTS-A).—The IDTS-A (Annis, Turner, & Sklar, 1997) is a 50-item measure assessing how often individuals drank heavily in a variety of situations over the past year. Items are rated on a Likert scale from 0 (never) to 4 (almost always). The eight subscales assess heavy drinking in situations involving: Unpleasant Emotions (α = .88), Physical Discomfort (α = .67), Pleasant Emotions (α = .89), Testing Personal Control (α = .87), Urges and Temptations to Drink (α = .65), Conflict with Others (α = .89), Social Pressure to Drink (α = .89), and Pleasant Times with Others (α = .87). Cronbach's alpha for the IDTS total score was .95. Participants who scored above the scale mid-point or achieved a score of 3 ("frequently") or greater for any item assessing drinking in response to negative emotions on either the Unpleasant Emotions (e.g., "When I felt anxious or tense about something;" "If I was depressed about things in general.") or Conflict with Others subscales (e.g., "When I felt tense or uneasy in the presence of someone;" or "When there were fights at home") met the negative affect drinker inclusion criterion.

Difficulties in Emotion Regulation Scale (DERS).—The DERS (Gratz & Roemer, 2004) is a 34-item measure assessing self-reported emotion regulation difficulties. Items are rated on a Likert scale from 1 (almost never) to 5 (almost always) and summed to form a total score. The measure consists of six subscales: Non-acceptance of Emotions (α = .89), Difficulties Engaging in Goal-directed Behavior when Distressed (α = .83), Impulse Control Difficulties (α = .85), Lack of Emotional Awareness (α =.83), Limited Access to Emotion Regulation Strategies (α = .89), and Lack of Emotional Clarity (α = .82). Cronbach's alpha for the DERS total score was .95.

Toronto Alexithymia Scale (TAS-20).—The TAS-20 (Bagby, Parker, & Taylor, 1994) is a 20-item measure that assesses alexithymia. Items are rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) and summed to form a total score. Scores of 61 or greater indicate alexithymia, 51–60 possible alexithymia, and 50 or lower an absence of alexithymia. The measure consists of three subscales: Difficulty Identifying Feelings (α = .84), Difficulty Describing Feelings (α = .79), and Externally-oriented Thinking (α = .52). The low alpha for the Externally-oriented Thinking subscale is consistent with prior literature (Davies, Stankov, & Roberts, 1998; Parker, Bagby, Taylor, Endler, & Schmitz, 1993) and has been acknowledged in reviews of the TAS-20 (Bagby, Parker, & Taylor, 2020; Parker, Taylor, & Bagby, 2003). The full TAS-20 has been shown to be a reliable and valid measure of alexithymia (Bagby et al., 1994). Cronbach's alpha for the TAS-20 total score was .86.

Short Inventory of Problems-Alcohol (SIP-A).—The SIP-A (Miller, Tonigan, & Longabaugh, 1995) is a 15-item measure assessing physical, emotional, and social consequences of alcohol use. Items are rated on a dichotomous (no/yes) scale and summed to form a total score with higher scores indicating greater problems resulting from drinking. The SIP-A has been shown to have high internal consistency and reliability (Blanchard, Morgenstern, Morgan, Labouvie, & Bux, 2003). Cronbach's alpha in the present study was .84.

Alcohol Dependence Scale (ADS).—The ADS (Horn, Skinner, Wanberg, & Foster, 1984) consists of 25 items rated either dichotomously (no=0/yes=1) or on a three-point scale that vary as a function of the question but generally contain a "no" response (score = 0), a "sometimes" response (score = 1), and an "often" response (score = 2). For example, responses to the question *Do you get physically sick as a result of drinking?* are *No*, *Sometimes*, or *Almost every time I drink*. Responses to each item are summed with higher scores indicating more severe alcohol dependence. The ADS has been shown to be reliable and valid (Doyle & Donovan, 2009). Cronbach's alpha in the present study was .83.

Brief Symptom Inventory (BSI).—The BSI (Derogatis, 1993) is a 53-item measure that assesses nine domains of psychological symptoms. Items are rated on a five-point Likert scale ranging from 0 (not at all) to 4 (extremely). The current analyses utilized the Positive Symptom Total (PST), which is a count of the non-zero items endorsed, with higher scores indicating greater overall symptoms. The BSI has been shown to be a valid indicator of psychological distress (Hayes, 1997). Cronbach's alpha in the present study is .96.

Data Analysis Plan

First, preliminary analyses (e.g., descriptive statistics and bivariate correlations) were conducted in SPSS (IBM Corporation, 2017) on all study variables (see Tables 1 and 2). Second, the correlation between income and marital status and the endogenous study variables were examined, given that previous literature has shown that income and marital status have protective effects on the development of alcohol problems (Grant, 1997; Leonard & Rothbard, 1999). Income was significantly correlated with alcohol problems ($r = -.22$, $p = .008$), psychological distress ($r = -.20$, $p = .016$), and alcohol dependence ($r = -.19$, $p = .026$), but not significantly correlated with difficulties with emotion regulation. Marital status was significantly correlated with alcohol problems ($r = -.20$, $p = .018$), but not with psychological problems, difficulties with emotion regulation, or alcohol dependence. Subsequently, both income and marital status were controlled for in model testing.

Finally, structural equation modeling (SEM) was conducted to test the hypothesized path model, presented in Figure 1. For model fit indices, we considered the comparative fit index (CFI), Tucker-Lewis Index (TLI), the root-mean-square error of approximation (RMSEA), and the standardized root mean squared residual (SRMR). A CFI > .90, TLI > .95 (e.g., Hu & Bentler, 1999; Little, 2013), RMSEA < .08 (e.g., Browne & Cudeck, 1993; Little, 2013), and SRMR < .08 (e.g., Hu & Bentler, 1999) together indicate a reasonable to well-fitting model. Indirect associations were tested using the bias-corrected bootstrap method, which more accurately in balances Type 1 and Type 2 errors compared to alternative approaches

(MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). A bootstrap with 5000 random draws and the 95% bias-corrected confidence intervals (CIs) were adopted to test the significance of indirect effects. All SEM analyses were conducted in Mplus 8.2 using the maximum likelihood estimator (Muthén & Muthén, 2007).

Results

Descriptive statistics

Table 1 includes participant characteristics and descriptive statistics of variables used in the SEM.

Table 2 contains bivariate correlations for variables used in the SEM. All study variables were correlated with each other with one exception. The SIP-A was uncorrelated with the Externally-oriented Thinking subscale of the TAS-20. Table 2 also contains skewness and kurtosis statistics for each of the study variables used in the SEM. All skewness and kurtosis values are within an acceptable range (+/− 2; Kline, 2005).

Results of the structural equation model

The estimated model is depicted in Figure 2. This model had an adequate fit ($\chi^2 = 0.84$, $p = .66$; RMSEA = .00, 95% CI: .00-.13; CFI = 1.00; TLI = 1.033; SRMR = .01). As hypothesized, the Difficulty Identifying Feelings subscale of the TAS-20 was positively associated with the DERS and BSI, both of which were positively associated with the SIP-A and the ADS. However, the Difficulty Describing Feelings and the Externally-oriented Thinking subscales were not related to any variable of interest in the model.

Table 3 contains standardized indirect effect, standard errors, p-values and 95% confidence intervals for significant paths in the bootstrap analysis. The indirect association between the Difficulty Identifying Feelings subscale of the TAS-20 and alcohol problems via the DERS and the BSI was significant, with 95% CI ranging from .05 to .26. The indirect association between the Difficulty Identifying Feelings subscale of the TAS-20 and the ADS via the DERS and the BSI was significant, with 95% CI ranging from .04 to .25. This model explained 32.30% of the variance in alcohol problems and 26.80% of the variance in alcohol dependence.

Discussion

The aim of the current study was to propose and test a preliminary model to explain the mechanism by which alexithymia influences alcohol problems. Using a treatment-seeking sample of individuals diagnosed with AUD, we found that one subscale of the Toronto Alexithymia Scale, Difficulty Identifying Feelings, was indirectly associated with alcohol problems and alcohol dependence through difficulties with emotion regulation and psychological distress. These findings add to the existing literature demonstrating that alexithymia disrupts emotion regulation processes and is associated with increased negative affect and increased use of unhealthy coping strategies (Carton et al., 2008; Linn et al., 2020; Peters & Lumley, 2007), including alcohol use. Though these findings need to be replicated with longitudinal data, these preliminary results suggest that intervention supplements

that enhance skills for identifying emotions may have value for the treatment of AUD among individuals who report drinking heavily in response to negative affect. For example, improving one's ability to identify and differentiate among emotions, particularly negative emotions, has been linked to enhanced emotion regulation and an improved ability to select a more effective strategy for managing emotions (Kalokerinos, Erbas, Ceulemans, & Kuppens, 2019). Improving one's ability to differentiate emotions has also been associated with reduced smoking and reduced negative affect (Sheets, Bujarski, Leventhal, & Ray, 2015; Willroth, Flett, & Mauss, 2020).

Our findings are consistent with previous research linking alexithymia and substance use (Lyvers, Coundouris, Edwards, & Thorberg, 2018; Lyvers, Hanigan, & Thorberg, 2018) as well as a positive association between alexithymia, difficulties with emotion regulation, and psychological distress (Liang & West, 2011; Lyvers, Brown, & Thorberg, 2018; Pandey, Saxena, & Dubey, 2011; Silva, Vasco, & Watson, 2017). The current study extends this literature by testing a model in which both difficulties in emotion regulation and psychological distress are potential mechanisms that link alexithymia to alcohol use problems. When viewed in the context of previous research suggesting that people with alexithymia feel emotions as nonspecific bodily arousal (Betka et al., 2018; Mueller & Alpers, 2006), the current findings provide a parsimonious and empirically testable explanation regarding how alcohol use problems may develop in people with alexithymia that is consistent with other negative reinforcement models of substance use. Most theories of alcohol use suggest that affect regulation is a primary motive for drinking (Brown, Goldman, Inn, & Anderson, 1980; Greeley & Oei, 1999); however, people with alexithymia struggle to accurately identify affective states. Instead, affective states are felt as nonspecific bodily sensations such as agitation, frustration, and restlessness (Betka et al., 2018; Mueller & Alpers, 2006). In the absence of an adaptive coping response, alcohol is used to ease these uncomfortable sensations (Lyvers et al., 2019). To the extent that a person's drinking behavior is effective in reducing or relieving these unpleasant sensations, the behavior is negatively reinforced and strengthens over time (Baker et al., 2004; Bradizza & Stasiewicz, 2009; Koob, 2000; Stasiewicz & Maisto, 1993).

The Difficulty Identifying Feelings subscale of the TAS-20, which demonstrated significant positive relationships with emotion dysregulation in the current analyses, is conceptually similar to several other constructs in the literature, including low private self-consciousness (i.e., attention directed inward toward thoughts, feelings, and behaviors; Fenigstein, Scheier, & Buss, 1975), poor emotion differentiation (Kashdan, Barrett, & McKnight, 2015), and difficulties with interoception (i.e., emotional awareness; Craig, 2002). A common underlying dimension of these constructs is an impairment in the ability to notice, to attend to, and to label internal states, which are necessary skills for successful psychotherapy (Hungr, Ogrodniczuk, & Sochting, 2016). Moreover, each of these constructs has a defined relationship with alcohol problems. Individuals with low private self-consciousness are at higher risk for relapse (Bradizza et al., 1999), whereas those who can identify and label emotions with granularity are more apt to select adaptive emotion regulation strategies and may be less susceptible to alcohol problems (Anand, Chen, Lindquist, & Daughters, 2017; Kashdan, Ferssizidis, Collins, & Muraven, 2010). Similarly, people with high levels of interoception are less likely to report alcohol problems. Thus, impairments in a person's

ability to notice, to attend to, and to describe internal states are associated with greater substance use problems.

Consequently, the importance of considering alexithymia in the context of related constructs such as private self-consciousness, emotion differentiation, and interoception is the potential value of this comparison for gaining greater insight into the nature of emotional processes and their relationship to AUD. Emotion-focused interventions that improve emotion identification and differentiation skills may help moderate the influence of alexithymia and improve alcohol treatment outcomes, which is consistent with recent appeals to address the ability to attend to internal states as a target of clinical interventions (Psederska, Savov, Atanassov, & Vassileva, 2019; Swan, Votaw, Stein, & Witkiewitz, 2020). Emotion regulation treatment for AUD, dialectical behavior therapy, and cognitive-behavioral therapy for depression address emotion regulation deficits and may provide information on treatment content that could be adapted to supplement AUD treatment (Asnaani et al., 2020; Cavicchioli et al., 2020; Stasiewicz, Bradizza & Slosman, 2018; Strauss et al., 2019).

Although contrary to study predictions, the Difficulty Describing Feelings and the Externally-oriented Thinking subscales of the TAS-20 did not have significant associations with other variables in the study, which is consistent with prior research (Carton et al., 2010; Patwardhan et al., 2019). The Difficulty Describing Feelings subscale may not have demonstrated a significant association given that theories of emotion and emotion regulation propose that one must first identify an emotion before describing it to others (Gross, 2014). Thus, an inability to identify an emotion precludes the ability to describe it. The Externally-oriented Thinking subscale may not be related to drinking because the subscale measures a style of thinking (Bagby et al., 2020; Parker et al., 2003) and may not contribute to the aversive bodily sensations that individuals with alexithymia experience in place of identifiable affective states.

Despite the strengths of this study, it is not without limitations. First, given the cross-sectional nature of the current data, the hypothesized directionality between variables should be interpreted cautiously. Longitudinal studies, in particular ones utilizing daily data collection or ecological momentary assessment may be particularly useful to further clarify the temporal relationships between alexithymia, difficulties with emotion regulation, psychological distress, and alcohol problems. Second, the current findings may be subject to self-report biases. Although data were collected by trained research technicians who attempted to minimize self-report biases by employing good practices, such as non-judgmental responses to participant disclosure, participants may still have responded in ways that exaggerate or minimize problems. Third, participants were negative affect drinkers. Although negative affect motivations for drinking are reported amongst many individuals seeking treatment for AUD (Marlatt & Gordon, 1985), the model tested may not be applicable to non-negative affect drinkers. Fourth, other factors known to influence alcohol consumption, but not assessed in this study, could be investigated in future studies. For example, future research should consider the potential influence of nicotine (Falk et al., 2006) and cannabis use on alcohol consumption (Subbaraman & Kerr, 2015), as well as the impact of medical conditions on negative emotions and alcohol consumption (Witkiewitz et al., 2015). Fifth, the model used a cumulative measure of psychological distress (Brief

Symptom Inventory) and results may differ if measures of depression, anxiety, and stress were used. This, too, is an area for future research. Lastly, data were drawn from participants living in a mid-size northeastern city and may not generalize to those in larger urban or rural areas.

Conclusion

Alexithymia is common among individuals with alcohol problems and is characterized as a disruption of adaptive emotion regulation processes (Linn et al., 2020; Ziadni, Jasinski, Labouvie-Vief, & Lumley, 2017). Although alexithymia is associated with greater psychological symptoms and alcohol problems, to date, studies have not yet articulated processes by which these variables may be related. Our findings suggest that the difficulties identifying feelings aspect of alexithymia is indirectly associated with alcohol problems through both difficulties with emotion regulation and psychological distress. These relationships should be regarded as preliminary until they can be tested utilizing longitudinal designs. Alcohol may be used as a maladaptive coping response to manage affective states, which are experienced as aversive bodily sensations by alexithymic individuals. Given the prevalence of alexithymia among substance misusing populations, the current analyses indicate that behavioral treatment supplements that enhance the skills of identifying emotions are needed.

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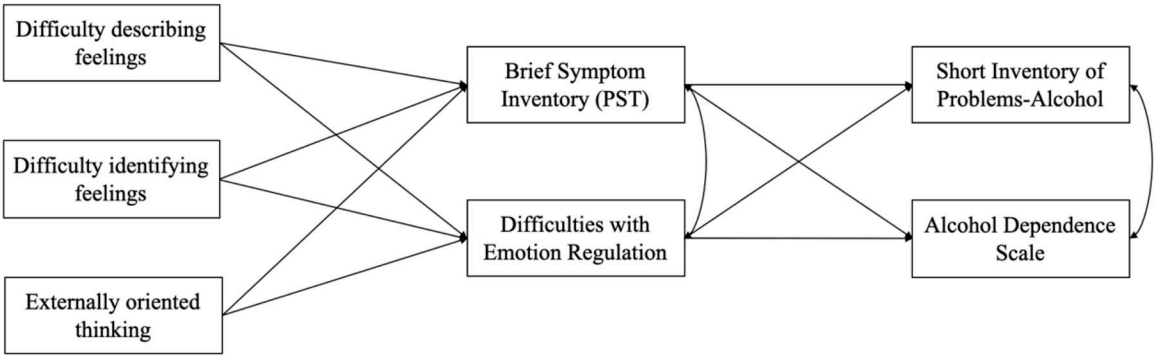

Figure 1.
Hypothesized path model.

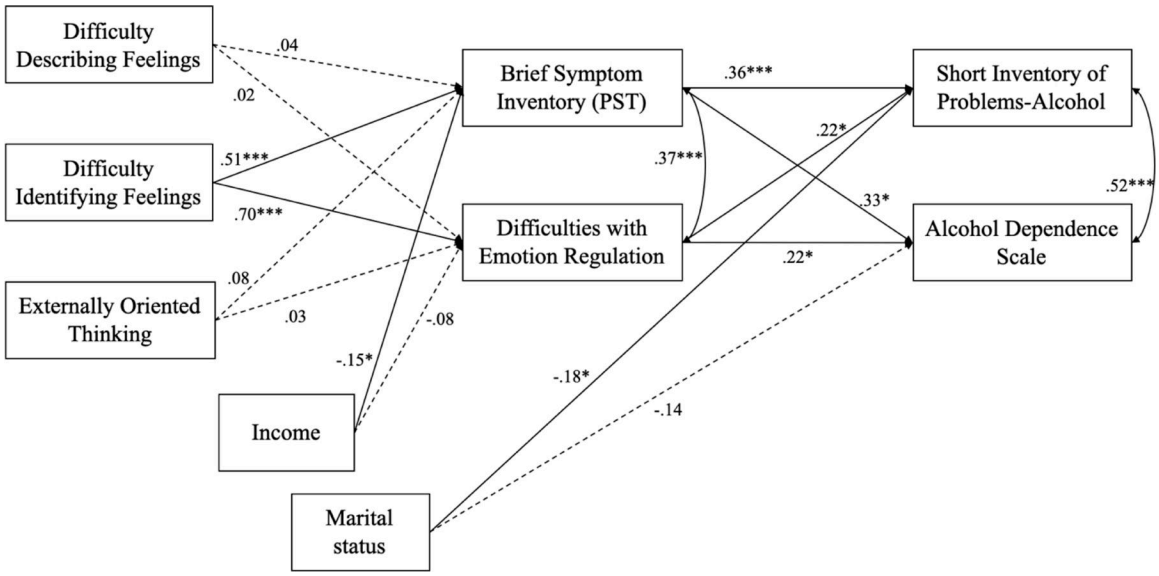

Figure 2.

Results of structural equation model

Note: PST (Positive Symptom Total) is the sum of non-zero responses to all items in the BSI. Non-significant paths are shown with dashed lines. * p < .05. ** p < .01. *** p < .001.

Table 1.

Demographic and descriptive statistics

	M (sd) or N (%)
Age	49.56 (11.18)
Women	75 (53.20)
Men	66 (46.80)
Marital status	
Single/Separated/Divorced	76 (53.90)
Married or living as married	65 (46.10)
Employment status	
Unemployed	42 (29.79)
Employed part-time	14 (9.90)
Employed full-time	85 (60.30)
Income	
20,000 or less	19 (13.57)
20,000–40,000	30 (21.42)
40,000–60,000	31 (22.14)
60,000–80,000	17 (12.14)
80,000 or more	43 (30.71)
Toronto Alexithymia Scale	49.23 (12.11)
Difficulty describing feelings	13.28 (4.29)
Difficulty identifying feelings	16.57 (6.18)
Externally-oriented thinking	19.37 (4.15)
Brief Symptom Inventory (PST)	27.08 (11.24)
Difficulties with Emotion Regulation	84.84 (23.04)
Short Inventory of Problems-Alcohol	23.18 (8.11)
Alcohol Dependence Scale	15.76 (6.96)

Table 2.

Skewness, Kurtosis, and Correlations Among Variables Used in the Structural Equation Model

Variable	Skewness	Kurtosis	1	2	3	4	5	6	7
1. Difficulty Describing Feelings	−.08	−.66	--						
2. Difficulty Identifying Feelings	.29	−.66	.72**	--					
3. Externally-oriented Thinking	.06	−.52	.44**	.38**	--				
4. Brief Symptom Inventory (PST)	.07	−.89	.45**	.58**	.31**	--			
5. Difficulties with Emotion Regulation	.48	.56	.53**	.73**	.31**	.64**	--		
6. Short Inventory of Problems-Alcohol	.06	−.32	.19*	.32**	.10	.50**	.45**	--	
7. Alcohol Dependence Scale	.65	.94	.21*	.31**	.22**	.46**	.42**	.67**	--

Note.

* $p < .05$.

** $p < .01$.

Table 3.

Indirect Effects from the Bootstrap Analysis

Pathway	ß	SE	p-value	95% CI
DIF→DERS→SIP	.15	.06	.010	.05-.24
DIF→BSI→SIP	.16	.07	.018	.05-.26
DIF→DERS→ADS	.14	.06	.017	.04-.24
DIF→BSI→ADS	.15	.06	.015	.05-.25

Note. DIF is the Difficulty Identifying Feelings subscale from the TAS-20; DDF is the Difficulty Describing Feelings Subscale from the subscale from the TAS-20. DERS is the Difficulty with Emotion Regulation Scale. BSI is the Positive Symptom Total measure from the Brief Symptom Inventory. SIP is the Short Inventory of Problems-Alcohol. ADS is the Alcohol Dependence Scale. Only statistically significant paths are reported.