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The Relationship between Alcohol Expectancies and Drinking Restraint in Treatment Seeking Alcohol Dependent Patients

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Abstract

The allied psychological drinking constructs of alcohol expectancy and drinking restraint have shown considerable promise, both independently and in combination, in understanding problematic drinking. However, previous research examining the relationship between these two constructs has only occurred in pre-dependent, convenience samples. This study examined the role of both alcohol expectancies and drinking restraint in an alcohol dependent sample. 143 DSM-IV alcohol dependent participants (93 males, 50 females) completed measures of drinking restraint (Temptation and Restraint Inventory, TRI) and alcohol expectancy (Drinking Expectancy Profile, DEP), along with quantity and frequency of consumption and dependence severity (Alcohol Dependence Scale, ADS). The results showed that although alcohol expectancy and drinking restraint do share common underlying properties, there was unique variance attributed to the prediction of dependence severity and consumption. The results also failed to replicate the drinking restraint model observed in non-clinical samples. It was concluded that alcohol expectancy and drinking restraint models appear show superior utility in pre-dependent populations. The implications of these findings in refining social cognitive models of alcohol misuse are discussed, with a particular focus on prevention.

Key Words: Alcohol Expectancies; Drinking Restraint; Self-Efficacy; Dependence

1. Introduction

A large body of research has focused on the consequences of maladaptive beliefs in the initiation and maintenance of heavy alcohol use. Two widely investigated cognitive constructs that attempt to explain why people drink at problematic levels are drinking restraint (Collins & Lapp, 1991; Connor, Williams & Ricciardelli, 1999; Curry, Southwick & Steele, 1987; Ruderman & McKirnan, 1984) and alcohol expectancy (Goldman, Del Boca & Darks, 1999; Young & Oei, 1993). These allied psychological drinking constructs have shown considerable promise, both independently and in combination, in pre-dependent convenience samples. Fewer studies have examined these models in dependent populations. The two studies that have investigated the relationship between drinking restraint and alcohol expectancies have been conducted with non-clinical samples (Collins, Koutsky, Morsheimer & MacLean, 2001; Connor, Young, Williams & Ricciardelli 2000).

According to Collins (1993), drinking restraint describes a process of competing cognitions between a preoccupation with alcohol (or Cognitive-Emotional Preoccupation [CEP], Collins & Lapp, 1992) and resistance of this temptation through self-imposed rules and strategies (or Cognitive-Behavioral Control [CBC], Collins & Lapp, 1992). Characteristically, a restrained drinker experiences a strong preoccupation with alcohol but has developed rigid control mechanisms to resist drinking. When these control mechanisms fail, the restrained drinker is hypothesized to engage in heavy drinking due to limit violation (Collins Lapp & Izzo, 1991; Muraven, Collins, Morsheimer, Shiffman & Paty, 2005). The Temptation and Restraint Inventory (TRI, Collins & Lapp, 1992) measures both Cognitive-Emotional Preoccupation (CEP) and Cognitive-Behavioral Control (CBC) constructs. The relationship between these two factors in non-clinical samples shows a consistent association with problematic alcohol use. Highly preoccupied individuals who report low cognitive behavioral control over their drinking also

report the highest levels of consumption and alcohol problems (eg. Collins & Lapp, 1992; Connor, et al., 1999; Williams & Ricciardelli, 1999). However, this model was not supported in a recent study of alcohol dependent subjects, with the Cognitive Emotional Preoccupation (CEP) factor being the only factor related to alcohol consumption and dependence severity (Connor, Gudgeon, Young & Saunders, 2004). Connor et al. (2004) concluded that as subjects in this study consumed alcohol most days for withdrawal relief, the restricted range of the Cognitive-Behavioral Control (CBC) factor scores may have accounted for divergent findings from the non-clinical studies.

Preoccupation with drinking and resistance strategies associated with problematic drinking share some conceptual similarities with the key constructs of social cognitive theory (Bandura, 1977, 1999), outcome expectancies and self-efficacy. Alcohol expectancies are a specific subset of outcome expectancies defined as ‘if ... then ...’ contingencies; if alcohol is consumed, then certain behavioral and affective consequences follow. Alcohol expectancies (AE) show consistent associations with drinking behavior (Baldwin, Oei, & Young, 1993; Young, Connor, Ricciardelli & Saunders, 2006). The second cognitive set, relating to self-efficacy judgments, refers to the situational confidence in resisting alcohol (Young & Oei, 1993). Bandura (1977) asserts that both expectancy subsets are important in the acquisition, maintenance, and extinction of behavior, including problem drinking (Bandura, 1999). Drinking refusal self-efficacy (DRSE) is associated with ongoing drinking behavior (Skutle, 1999; Young & Oei, 1993), and the likelihood of remaining abstinent following treatment (Miller, McCrady, Abrams & Labouvie, 1994; Goldbeck, Myatt & Aitchison, 1997; Greenfield et al, 2000). In a parallel manner to Cognitive Emotional Preoccupation (CEP) / Cognitive Behavioural Control (CBC), the combination of high alcohol expectancies (AE) and low drinking refusal self-efficacy (DRSE) places individuals at greatest risk of alcohol-related problems (Connor, et al., 2000; Young &

Oei, 1993). Figure 1 visually represents the earlier empirical testing of both models in non-dependent populations.

Insert Figure 1 about here

Both cognitive constructs of drinking restraint and alcohol expectancies have independently demonstrated the capacity to inform our understanding of alcohol misuse, both in non-clinical and clinical populations. The examination of these constructs in combination is appealing, given their similar pedigrees derived from learning principles. Studies examining the combined contribution of these psychological constructs have only been conducted in non-clinical, convenience samples. In particular, it is unknown whether the more established psychological construct of alcohol expectancy offers any additional benefit over that of drinking restraint in the prediction of dependence syndrome severity and alcohol consumption.

2. Methods

2.1 Participants

Participants were 143 consecutively assessed patients diagnosed with alcohol dependence voluntarily attending at a public hospital based alcohol and drug treatment centre for detoxification. DSM-IV diagnosis was determined at the time of admission through a structured interview by the treating medical practitioner. Their average age was 41.1 years (sd 10.5). There were 93 males and 50 females. The sample was generally well educated, with 19.6% of subjects completing higher education (college, advanced studies), 11.9% completing a trade qualification,

56.7% secondary education and 11.8% primary education. Just over two-thirds reported being single (69.2%), with 15.4% in a “de-facto” relationship and 15.4% married.

2.2 Ethics Approval

Ethics approval for the study was obtained from The University of Queensland and the Royal Brisbane and Women’s Hospital, Queensland, Australia. Participation was voluntary and all participants signed a written consent form prior to commencing the study.

2.3 Inclusion and Exclusion Criteria

All patients (a) satisfied DSM-IV criteria for Alcohol Dependence, (b) were not heavily sedated during assessment, (c) were not current polysubstance or illicit drug misusers (with the exception of nicotine dependence and greater than once per month marijuana misuse), (d) did not have any life-threatening alcohol-related medical complications, (e) were physically and mentally well enough to undertake a clinical interview, (f) were not in acute alcohol withdrawal and (g) provided written informed consent to participate in the clinical interview. During the eight month recruitment period, 44% of the consecutive admissions were selected for the study based on these criteria. Of the potential patient pool, 30% were excluded on the basis of polysubstance dependence, with an additional 10% being excluded for either life-threatening medical complications, inability to complete assessment or refusal to participate. A further 16% were excluded from the study as they did not complete the initial clinical interview.

2.3 Measures

2.3.1 Reported Drinking: Consumption was measured by three previously validated measures (Connor, et al, 1999; 2000; 2004; Gudgeon, et al, 2005), (1) frequency of drinking was measured by the self-reported average number of drinking days per week (on a scale of 0 to 7

days per week) in a typical week, over the past month. (2) Quantity of drinking was measured by the self-reported number of standard drinks consumed, on average, per daily drinking occasion in a typical week, over the past month. Due to inaccurate assessment of beverage volume, actual consumption is usually underestimated by approximately 30% (Kaskutas & Graves, 2000). For this reason, participants were shown pictures of common alcoholic beverages that converted familiar Australian beverage sizes (e.g. “spirit nip”, “bottles”, “pot”, “middie”, “schooner”) to standard drinks (10 grams of alcohol). Participants then indicated average drinks per drinking session. (3) Weekly drinking total was then calculated by combining frequency and quantity to provide a composite variable of total alcohol consumption for a week interval.

2.3.2 Alcohol Dependence Scale: The ADS (Skinner & Allen, 1982; Skinner & Horn, 1984) is a quantitative index of alcohol problems and dependence over the previous 12 months. The ADS is a 25-item self-report measure that has a classification accuracy of 94% for alcohol abuse or dependence (Ross, *et al.*, 1990).

2.3.3 Drinking Expectancy Profile: The DEP (Young & Oei, 1996) consists of two components, the Drinking Expectancy Questionnaire (DEQ) with a five-point Likert response scale consisting of the factors measuring the expectancies of Assertion (eg. “I have more self confidence when drinking”), Affective Change (eg. “Drinking makes me bad tempered”), Sexual Enhancement (eg. “I often feel sexier after I’ve been drinking”), Cognitive Change (eg. “Drinking helps me be more mentally alert”), Dependence (eg. I drink alcohol because it is a habit”) and Tension Reduction (eg. “I drink to relieve tension”). Total DEQ score, derived by the addition of factor scores (with affective change reversed) indicates strength of alcohol expectancies. The second component is the Drinking Refusal Self-Efficacy Questionnaire (DRSEQ) measured on a 31 item, six-point scale with the three factors of Social Pressure Self-Efficacy (eg. “When I see

others drinking”), Emotional Relief Self-Efficacy (eg. “When I am uptight”) and Opportunistic Self-Efficacy (eg. “When I am watching TV”). Total DRSEQ score indicates the strength of drinking refusal self-efficacy. Test-retest, content, criterion and construct validities have confirmed the validity of the DEP (Allen & Wilson, 2003). The DEP assesses proximal beliefs and does not ask to report over a particular time frame. The DEP has shown confirmed validity in clinical samples (e.g., Young & Oei, 1996).

2.3.4 Temptation and Restraint Inventory: Drinking restraint was assessed using the TRI (Collins & Lapp, 1992). The TRI measures the two facets of restraint through two higher order factors. Temptation to drink is measured through the higher order factor of Cognitive Emotional Preoccupation (CEP) which consists of the factors Govern (eg. “How much difficulty do you have controlling your drinking?”), Emotion (eg. Do you ever feel so nervous that you really need a drink?) and Cognitive Preoccupation (eg. “Do thoughts about drinking intrude into your daily activities?”). The attempt to control drinking is measured by the higher order factor of Cognitive Behavioral Control (CBC) which consists of the subscales Restrict (eg “How often do you attempt to cut down the amount you drink?”) and Concern About Drinking (eg. “Does the sight and smell of alcohol make you think about limiting your drinking?”). The TRI is 15-item scale and five-point Likert anchor responses were utilised in this study (Connor, et al., 1999). It assesses proximal beliefs and does not ask to report over a particular time frame. The TRI has demonstrated construct and concurrent validity in clinical (Connor, et al., 2004) and non-clinical populations (Collins & Lapp, 1992; Connor et al., 2000).

2.4 Procedure

Participants were invited to participate in the study between Days two to five following admission to the alcohol and drug detoxification unit. Following informed consent, a 30-45

minute interview was conducted in which each participant completed the above measures.

Participants were not compensated for participation.

3. Results

3.1 Preliminary Analyses

A one-way MANOVA was conducted to identify any gender differences in the dependence and drinking behavior measures. There was a significant gender difference in both dependence and drinking behavior (Wilks' Lambda = 0.933, $F(4, 138) = 2.46$, $p < .05$). Tests of between subjects effects found that males had higher Alcohol Dependence Scale (ADS) scores ($F(1, 141) = 6.87$, $p < .01$; males $M = 31.39$, $sd = 9.20$ and females $M = 27.04$, $sd = 9.91$), higher quantity of drinking ($F(1, 141) = 5.42$, $p < .05$; males $M = 20.30$ standard drinks per drinking occasion, $sd = 10.75$ and females $M = 15.86$, $sd = 11.13$) and higher weekly alcohol consumption ($F(1, 141) = 4.04$, $p < .05$; males $M = 127.59$, $sd = 78.61$ standard drinks per week and females $M = 99.98$, $sd = 77.71$). There was no gender difference in frequency of drinking ($F(1, 141) = 0.001$, ns ; males $M = 6.17$ drinking days per week, $sd = 1.40$ and females $M = 6.18$, $sd = 1.40$). A second one-way MANOVA did not find gender differences within the two sub-scales of the Drinking Expectancy Profile (ie. Drinking Expectancy Questionnaire [DEQ] and Drinking Refusal Self-Efficacy Questionnaire [DRSEQ]) or Temptation and Restraint Inventory (Cognitive Emotional Preoccupation [CEP] and Cognitive Behavioral Control [CBC]) ($F(4, 138) = 1.32$, ns).

3.2 Relationships Between Expectancy and Restraint

Zero-order correlations were conducted using Pearson's product-moment correlation coefficients to assess the relationship between expectancy and restraint constructs, as well as consumption and dependence severity measures. [Table 1](#) summarizes these correlations.

Insert Table 1 about here

A hierarchical regression was performed to further investigate the relationship between the Temptation and Restraint Inventory (TRI) and Drinking Expectancy Profile (DEP) factors and their association between measures of alcohol dependence and drinking behavior. This set of analyses tested the association of the DEP sub-scales (Drinking Expectancy Questionnaire [DEQ] and Drinking Refusal Self-Efficacy Questionnaire [DRSEQ]) to dependent variables over and above TRI sub-scales (Cognitive Emotional Preoccupation [CEP] and Cognitive Behavioral Control [CBC]) (see [Table 2](#)). Gender was controlled for at Step 1 in those measures where differences were previously identified (ie. ADS, Quantity, Week Total).

The TRI sub-scales were significantly associated with Alcohol Dependence Scale (ADS) scores, accounting for 19.9% of variance ($F_{\text{change}}(2, 138) = 18.29, p < .01$). The TRI sub-scales accounted for 7.4% of the variance of Quantity ($F_{\text{change}}(2, 139) = 5.75, p < .01$), 15.1% of the variance in Frequency ($F(2, 140) = 12.47, p < .01$) and 10.6% of variance for Week Total ($F_{\text{change}}(2, 139) = 8.48, p < .01$).

Once the variance of the TRI sub-scales were taken into account, the DEP sub-scales added further variance to ADS, accounting for an additional 8.1% ($F_{\text{change}}(2, 137) = 8.20, p < .01$). The DEP sub-scales added a further 5.9% of the variance in frequency ($F_{\text{change}}(2, 138) = 5.14, p < .01$) and another 4.4% of variance was added to Week Total ($F_{\text{change}}(2, 137) = 3.70, p < .01$). The DEP sub-scales did not add any extra significant variance to Quantity ($F_{\text{change}}(2, 137) = 1.06, \text{ns}$).

Insert Table 2 about here

4. Discussion

In this alcohol dependent sample, both the Drinking Expectancy Profile (DEP) and Temptation and Restraint Inventory (TRI) were associated with dependence severity (Alcohol Dependence Scale, ADS), quantity and frequency of drinking and average weekly consumption. Consistent with studies in non-clinical populations, it was anticipated that severity of dependence and alcohol consumption would be associated with both high (significant positive correlation) self-reported scores on alcohol expectancies (Drinking Expectancy Questionnaire, DEQ) and cognitive preoccupation with alcohol (Cognitive Emotional Preoccupation, CEP), combined with low self-reported scores (significant negative correlations) on drinking refusal self-efficacy (Drinking Refusal Self-Efficacy, DRSEQ) and cognitive and behavioral control (Cognitive Behavioral Control, CBC) (summary, [Figure 1](#)). These assumptions were not supported. In terms of the restraint model, the results show that Cognitive Emotional Preoccupation (CEP) was the strongest TRI sub-scale associated with all alcohol use indices, with Cognitive-Behavioral Control (CBC) sub-scale playing a negligible role. This finding indicates two possibilities- that the restraint model as presented by Collins and Lapp (1992) is less robust in alcohol dependent drinkers or there were unique characteristics of the current sample or time of assessment (days 2-5 of treatment) that influenced the results. Given that the CEP items tap into key alcohol dependence features (eg. “How much difficulty do you have controlling your drinking?”), a

strong statistical association with dependence severity is likely. Further studies that employ broader, alcohol dependent samples are warranted to examine this relationship further. In terms of the expectancy-based social cognitive model, strong alcohol expectancy (Drinking Expectancy Questionnaire, DEQ) low self-efficacy (Drinking Refusal Self-Efficacy, DRSEQ) was evident in predicting dependence severity scores. DRSEQ was the primary construct associated with consumption.

Although both the drinking restraint and alcohol expectancy scales accounted for unique variance in the majority of the measures, a significant proportion of shared variance remained. This indicates that although expectancy and restraint describe different constructs, they conceptually, as well as statistically, share certain underlying properties. Zero order correlations between Drinking Expectancy Questionnaire (DEQ) and Cognitive-Emotional Preoccupation (CEP) ($r = .41$) and Drinking Refusal Self-Efficacy (DRSEQ) and Cognitive-Behavioral Control (CBC) ($r = .27$) confirm this. It would be expected that problem drinking individuals who have strong expectations of the consequences of alcohol use are also likely to spend more time thinking about the rewarding benefits of alcohol. Similarly, poorly developed control mechanisms are likely to be related to low drinking refusal self efficacy. An important question not addressed in this cross-sectional study is the temporal sequence in the development of these cognitive sets. As noted, alcohol expectancy beliefs can develop independently of actual drinking experience, on the basis of vicarious learning (eg. Aas, Klepp, Laberg & Aaro, 1995; Yu & Perrine, 1997). A restrained drinking style is more likely to be related to learning from actual drinking experience. Consequently, one would expect that strong alcohol expectancy beliefs would play an important role in placing an individual in environments where alcohol is available. Weak self-efficacy beliefs may heighten the risk of problematic consumption, with drinking restraint being

more strongly associated with the style of drinking that the individual perceives is most likely to provide reinforcement related to the strength of their expectancy beliefs.

Typically, there is little variation in control strategies and drinking refusal self-efficacy beliefs in alcohol dependent samples (Connor, et al., 2004; Young & Oei, 1996). Patients in this sample were likely to be treatment seeking for the very reason that they have poorly developed strategies for control of their alcohol intake. Thus, the lack of utility associated with Cognitive-Behavioral Control (CBC) factor of the restraint measure is not surprising. When interpreting these results, some caution is needed in generalizing findings beyond treatment seeking dependent drinkers. The findings from this restricted sample of dependent subjects suggests that the multi-dimensional models of drinking restraint (Cognitive-Emotional Preoccupation [CEP] and Cognitive Behavioral Control [CBC]) (Collins, 1993) and expectancy (Drinking Expectancy Questionnaire [DEQ] and Drinking Refusal Self-Efficacy [DRSEQ]) (Connor, et al., 2000; Young & Oei, 1993) may have stronger utility in drinkers who did not have significant alcohol dependence. However, only further studies that have a more heterogeneous alcohol dependent sample samples can confirm this. Equally these models might be of use to monitor of change over time in those who have undergone treatment or to inform prevention approaches. Promising areas of future investigation also include determining the temporal sequence of expectancy and restraint development and the application of restraint and expectancy models to other substance misusing populations.

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Figure 1. Drinking Restraint and Alcohol Expectancy Models- Empirical findings from studies with non-dependent subjects

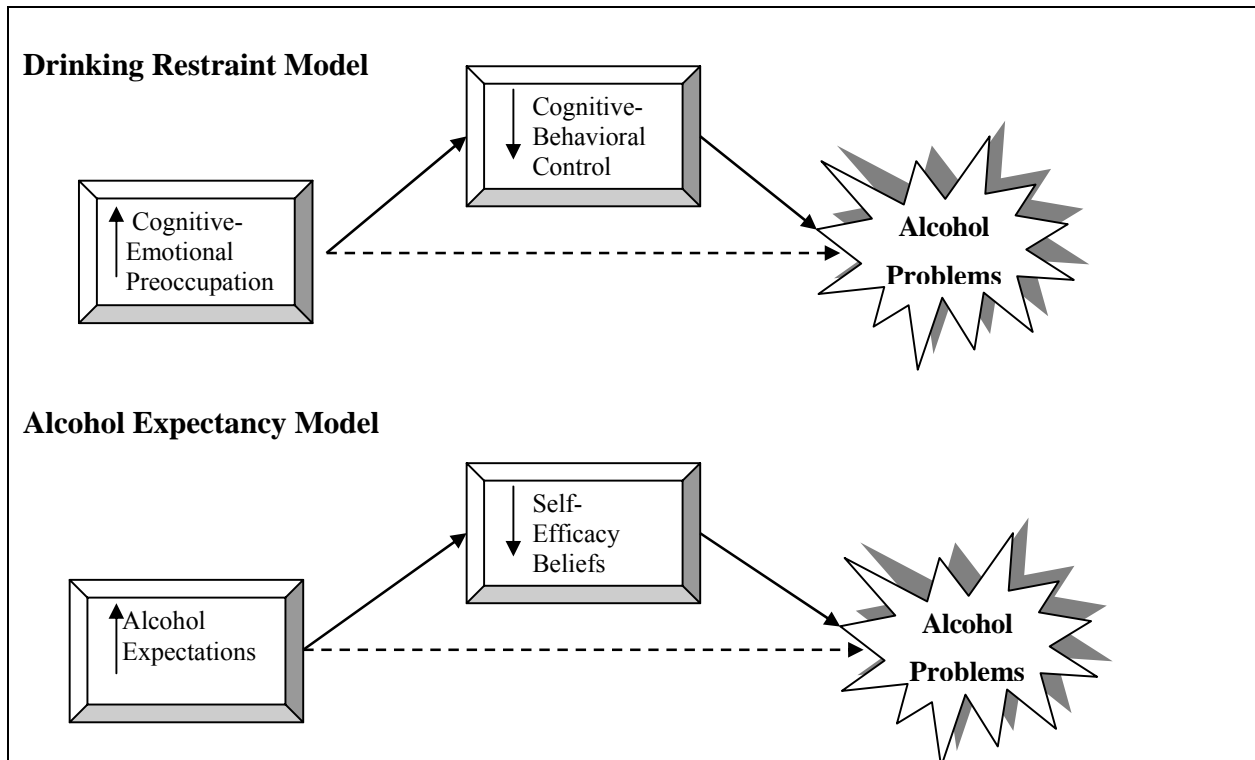


Table 1. Zero order correlations between variables used in study

	DEQ	DRSE	CEP	CBC	ADS	Quantity	Frequency	Week Total
Drinking Expectancy		-0.44**	0.41**	-0.17*	0.43**	0.03	0.13	0.02
Drinking Refusal Self-Efficacy			-0.52**	0.27**	-0.38**	-0.20**	-0.39**	-0.30**
Cognitive Emotional Preoccupation				-0.07	0.46**	0.28**	0.39**	0.34**
Cognitive Behavioral Control					0.00	-0.07	-0.08	-0.07
Alcohol Dependence Scale						0.27**	0.02	0.21**
Quantity of Drinking							0.14	0.95**
Frequency of Drinking								0.40**
Week Total								

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

Table 2. TRI and DEP as predictors of dependence severity and consumption

	ADS		Quantity		Frequency		Week Total	
	R ₂	β	R ₂	β	R ₂	β	R ₂	β
<i>Step 1</i>	0.05		0.04				0.03	
Gender		- 0.22**		- 0.19*				- 0.17*
<i>Step 2</i> ^a	0.25**		0.11**		0.15**		0.13**	
Cognitive Emotional Preoccupation		0.45**		0.26**		0.38**		0.32**
Cognitive Behavioral Control		0.03		-0.05		-0.05		-0.05
<i>Step 3</i>	0.33**		0.12		0.21**		0.17**	
Cognitive Emotional Preoccupation		0.29**		0.28**		0.28**		0.30**
Cognitive Behavioral Control		0.09		-0.05		0.01		-0.03
Drinking Expectancy		0.28**		-0.13		-0.12		-0.20*
Drinking Refusal Self-Efficacy		-0.10		-0.08		-0.30**		-0.21*

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

^aThis step represents Step 1 for frequency as gender was not entered as a predictor.