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Early recovery from alcohol dependence: Factors that promote or impede abstinence

Dara A. Charney, (M.D.)[a,b,*], Eugenia Zikos, (M.D.)[b], Kathryn J. Gill, (Ph.D.)[a,b]

[a]*Addictions Unit, McGill University Health Centre, Montreal, Canada*
[b]*Department of Psychiatry, McGill University, Montreal, Canada*

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Abstract

The objectives of this prospective follow-up study were to identify factors that promote or impede the early recovery process and to examine whether drinking status at 4 weeks predicts later abstinence. Patients with alcohol use disorders were assessed by clinical and semistructured interviews upon entering addiction treatment ($N = 175$) and were followed up biweekly to monitor their alcohol use. During the first 4 weeks of treatment, 57% ($n = 100$) of patients slipped or relapsed on alcohol, whereas 43% ($n = 75$) were fully abstinent. Patients who slipped or relapsed were more likely to report nondependent use of a secondary substance, meet criteria for a *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* Axis II Cluster B personality disorder, have a higher level of impulsivity, and have more severe social problems at intake. The final logistic regression model accounted for 37% of the variance in drinking status. Patients who slipped or relapsed early in treatment were likely to continue to struggle to maintain abstinence at 12 weeks.

Keywords: Abstinence; Addiction; Alcohol dependence; Early recovery; Treatment outcome

1. Introduction

The results of alcohol treatment are variable. Prospective studies of treatment-seeking alcohol-dependent adults report remission rates of 21% to 83% (reviewed in Finney, Moos, & Timko, 1999, and Vaillant, 1998). For example, Weisner, Matzger, and Kaskutas (2003) found that among 371 alcohol-dependent adults entering public and private addiction programs, 57% were abstinent 1 year after admission. The course of treatment is likely to be influenced by multiple biological and psychosocial variables (Ciraulo, Piechniczek-Buczek, & Iscan, 2003; Moos & Moos, 2006). The identification of predictors of alcohol treatment outcome serves not only to recognize underlying factors that perpetuate illness but also to delineate subgroups for which specific treatments may need to be developed.

The addiction treatment literature has identified numerous patient characteristics that are associated either with the remission of alcohol use disorders or with relapse and other indicators of poor outcome. Demographic variables, such as being female, older, married, and better educated, have been linked to higher rates of remission (Jarvis, 1992; McLellan et al., 1994; Moos & Moos, 2006; Ornstein & Cherepon, 1985). Measures of addiction severity, such as more frequent and heavier alcohol consumption, use of a secondary illicit drug (in particular cocaine use), more substance-related psychological and social consequences, have been linked to worse outcomes (Armor & Meshkoff, 1983; Booth, Curran, & Han, 2004; Brown, Seraganian, & Tremblay, 1993; McLellan et al., 1994; Moos & Moos, 2006). The research also shows that greater self-efficacy, less avoidant coping style, religiosity, and readiness to change are predictors of better outcomes (Curran & Booth, 1999; Miller, 1998; Moos & Moos, 2006; Moos, Moos, & Finney, 2001; Pardini, Plante, Sherman, & Stump, 2000). In terms of life context, patients with more supportive relationships with family members and friends fare better in treatment (Beattie &

* Corresponding author. Addictions Unit, McGill University Health Centre, 1547 Pine Avenue West, Montreal, Canada, QC H3G 1B3. Tel.: +1 514 934 8311; fax: +1 514 934 8262.
E-mail address: dara.charney@mcgill.ca (D.A. Charney).

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Longabaugh, 1997; Gordon & Zrull, 1991; Tucker, Vuchinich, & Pukish, 1995).

A number of studies have indicated that patients with concurrent psychiatric and alcohol use disorders have worse prognoses than those with no psychopathology, including a decreased rate of remission, an increased vulnerability for relapse, and a need for more treatment services (Driessen et al., 2001; Greenfield et al., 1998; Hasin et al., 1996; Loosen, Dew, & Prange, 1990; Willinger et al., 2002). For example, Greenfield et al. (1998) reported that among 101 patients hospitalized for alcohol dependence, a diagnosis of major depression at admission predicted shorter times to first drink and relapse after discharge. Driessen et al. (2001) followed up 100 alcohol-dependent patients in the postdetoxification period and found higher relapse rates among patients with concurrent anxiety and depression (77%) and with anxiety alone (69%) versus those patients with no psychopathology (40%). Other studies have suggested that depression has no impact on addiction outcome (Charney, Paraherakis, & Gill, 2001; Davidson & Blackburn, 1998; Sellman & Joyce, 1996; Schuckit, 1985) or that depression may convey a better prognosis (Kranzler, Del Boca, & Rounsaville, 1996; Rounsaville, Dolinsky, Babor, & Meyer, 1987).

Initial studies conducted at the McGill University Health Center (MUHC) Addictions Unit (n = 120) found that patients with a current depression diagnosis fared as well as the nondepressed patients in terms of all outcome measures at 6 months (Charney et al., 2001). However, the depressed patients received more treatment than the nondepressed patients, and additional treatment may have compensated for greater psychopathology among these dual diagnosis patients. A larger subsequent study at the MUHC Addictions Unit (n = 326) found that 73% of patients who reported depression symptoms were abstinent at 6 months; they fared significantly better than those who reported combined depression and anxiety symptoms, as the latter group achieved only a 40% abstinence rate at 6 months (Charney, Palacios-Boix, Negrete, Dobkin, & Gill, 2005). The low abstinence rate of patients with substance use disorder who reported combined depression and anxiety symptoms was similar to that found by Driessen et al. (2001).

In terms of Axis II psychiatric diagnoses, concurrent personality disorders (PD) have been associated with premature discontinuation of treatment (Powell & Peveler, 1996; Wagner et al., 2004), earlier relapse (Pettinati, Pierce, Belden, & Meyers, 1999; Verheul, van den Brink, & Hartgers, 1998; Wagner et al., 2004), poorer treatment response (Nurnberg, Rifkin, & Doddi, 1993; Wölwer, Burtscheidt, Redner, Schwarz, & Gaebel, 2001), and worse long-term outcome (Krampe et al., 2006; Powell et al., 1998). However, few studies have looked at the impact of individual personality diagnoses (other than antisocial personality disorder [ASPD]) on the course of alcoholism or on the outcome of alcohol treatment. Moreover, there have been few attempts to distinguish the differential effects of PD across the three diagnostic clusters (Nordholm & Nielsen, 2007; Pettinati et al., 1999; Preuss, Koller, Barnow, Eikmeier, & Soyka, 2006; Verheul et al., 1998). Although some studies find greater addiction severity and poorer treatment outcomes among alcoholics with Cluster B PDs (Morgenstern, Langenbucher, Labouvie, & Miller, 1997; Nordholm & Nielsen, 2007; Preuss et al., 2006; Wölwer et al., 2001), other studies suggest that alcoholics with ASPD and other Cluster B PDs may fare as well in treatment as patients with no PD (Nordholm & Nielsen, 2007; Ralevski, Ball, Nich, Limoncelli, & Petrakis, 2007; Verheul, van den Brink, Koeter, & Hartgers, 1999). Thus, there is no clear consensus regarding the relationship between alcoholism and individual PD diagnoses or across PD diagnostic clusters.

The current prospective follow-up study has two goals. The first is to assess alcoholic patients' course in treatment during the first 4 weeks following admission into an addiction program and to identify factors that promote or impede the early recovery process. The first 4 weeks or 28 days corresponds to the length of treatment offered by many addiction rehabilitation facilities. Moreover, for addiction programs that offer longer stays in treatment, the first 4 weeks often constitutes the period of highest dropout from treatment (Gauthier, Paraherakis, & Gill, 1997). Addiction patients who drop out early fare as poorly as patients who are untreated (Stark, 1992). To better distinguish between alcoholic patients who resume drinking from those who achieve abstinence in early treatment, we examined baseline demographic, substance use, social and psychiatric factors, including variables indicative of both *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) Axis I and Axis II psychopathology. The second goal of this study is to determine whether drinking status at 4 weeks predicts later abstinence or relapse.

2. Materials and method

2.1. Participants and procedures

Patients with alcohol use disorders were consecutively recruited upon entering treatment at the MUHC Addictions Unit. The Addictions Unit provides comprehensive care to adults with all forms of psychoactive substance use disorders; it pursues a treatment philosophy of total abstinence and offers integrated care for concurrent psychiatric disorders. Patients were informed about study procedures, as well as the risks and benefits of standard treatment; 183 patients provided written informed consent, and 107 declined to participate. The study's procedure and consent form were approved by the MUHC Research Ethics Committee.

Research assessments were conducted by the Clinical Research Coordinator (CRC), who was uninvolved in clinical care, within 1 week of entering treatment. Research assessments included the Addiction Severity Index (ASI; McLellan et al., 1990). The ASI is a structured clinical

interview that collects a wide range of information, including sociodemographics, and evaluates problem severity in seven areas: alcohol use, drug use, family/social functioning, medical status, employment/support, legal status, and psychological status. Within each of these problem areas, severity is measured in terms of number, duration, frequency, and intensity of symptoms experienced during the past 30 days, and a composite score is obtained with a range from 0 to 1. The psychometric properties of the ASI have been found to be excellent, with high interrater reliabilities for all composite scores (Alterman, Brown, Zaballero, & McKay, 1994).

The research assessment also established current and lifetime psychiatric diagnoses using the Structured Clinical Interview for *DSM-IV* (SCID and SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997; First, Spitzer, Gibbon, & Williams, 1996), depression severity using the Beck Depression Inventory (BDI; Beck & Steer, 1987), anxiety severity using the Beck Anxiety Inventory (BAI; Beck & Steer, 1993), levels of impulsivity using the Barratt's Impulsiveness Scale (BIS-11; Barratt & Patton, 1983), and general psychological distress using the Symptom Checklist (SCL-90-R; Derogatis, 1992). Subjects also provided urine samples for drug screening (cloned enzyme donor immunoassay).

All assessments were reviewed by an Addictions Unit psychiatrist who conducted a brief interview with each patient to screen for suicidal ideation, psychosis, or other psychiatric conditions that necessitated immediate intervention, as well as to apply study inclusion/exclusion criteria. Patients were eligible to be included if they were between 18 and 65 years of age and met criteria for a *DSM-IV* diagnosis of alcohol abuse or dependence. Patients were excluded if they had a second substance dependence (other than nicotine dependence), a psychotic or organic brain disorder, if they received any psychiatric medications, or if they required inpatient detoxification or psychiatric admission.

During the follow-up study, 175 participants met biweekly with the CRC for a period of 12 weeks. (Of the 183 patients [4%] who had initially provided consent, 8 did not return after their baseline assessment and were not included in the 28-day analysis.) At each visit, the CRC reviewed their alcohol/drug use diaries and documented cravings, slips, and relapses. Information obtained from clinic charts included treatment attendance (e.g., number of individual therapy sessions, group therapy sessions, and psychiatric appointments attended), as well as the results of random urine screening. For the purposes of this analysis, data obtained from patients' baseline, 2-, 4-, and 12-week visits will be used to assess course in early addiction treatment.

2.2. Standard addiction treatment

Following their assessments, patients were offered valium-based outpatient detoxification if medically required. Once detoxification was completed, they began standard outpatient treatment: one 50-minute individual therapy sessions per week, one 90-minute group therapy sessions per week, and random urine drug screens throughout treatment. The 90-minute weekly group therapy sessions combined psychoeducational, supportive, and relapse prevention interventions. The 50-minute weekly individual psychotherapy sessions promoted self-efficacy and personal responsibility for change, evaluated and enhanced the motivational level of the patient and readiness for change, and educated the patients about strategies that produce change and prevent relapses. The expected duration of individual therapy was 6 weeks; the expected duration of group therapy was 6 to 9 months. All addiction therapists had more than 5 years of experience as addiction counselors and held degrees in nursing, occupational therapy, or psychology. Patients were encouraged but not required to attend Alcoholics Anonymous (AA).

2.3. Data analyses

The sample was divided into two groups based on their alcohol consumption during the 4 weeks following their baseline assessment and randomization, that is, those who had slipped or relapsed during the first 28 days of treatment and those who remained abstinent during the first 28 days of treatment. The two groups were compared across a number of factors, including demographic, substance use, psychiatric, and social variables. Chi-square tests were used for categorical data; analysis of variance techniques were used for continuous data, including those for multiple variables and repeated measures (multivariate analysis of variance). Post hoc tests were conducted using Tukey or *t* tests. Data on retention in treatment and time to first slip/relapse was analyzed using the SPSS Survival program. The relationship between predictor variables and drinking status was assessed using logistic regression techniques for categorical outcome measures.

3. Results

3.1. Sample description

The 175 patients were predominantly men (71%), with a mean age of 44.7 ± 10.2 years. The sample was largely employed (64% employed full-time, 15% employed part-time, 7% retired or disabled, and 14% unemployed), unmarried (28% single, 29% separated or divorced, 42% married or remarried, and 1% widowed), and had received some postsecondary education (mean level of education of 13.7 ± 2.7 years).

Sixty-one percent of patients abused alcohol only, whereas 39% abused alcohol and at least one other drug (benzodiazepines 6%, cannabis 20%, and cocaine 13%). The average duration of their alcohol use disorders was 18.5 ± 9.1

years, with a mean age of onset of 25.5 ± 9.6 years. The sample had consumed on average 19.6 days of the 30 days prior to entering treatment, with a mean number of 10.9 ± 6.2 standard drinks per drinking day and a mean ASI composite score of 0.74 ± 0.17 (range = 0–1) for alcohol use severity.

Initial semistructured psychiatric interviews (SCID-IV) revealed that 25% of the sample met *DSM-IV* criteria for a current diagnosis of a depressive disorder (either primary or substance induced), 37% for a current diagnosis of an anxiety disorder (either primary or substance induced), and 49% for a personality disorder (28% for a Cluster B personality disorder). The ASI interview revealed that 42% of the sample reported having suicidal thoughts in the past (lifetime), 22% had made at least one suicide attempt, and 45% had a history of physical aggression. According to the self-report scales completed by patients at intake, the sample's mean BDI score was 19.6 ± 11.0 (which indicates a moderate level of depression), and their mean BAI score was 20.1 ± 12.5 (which indicates a moderate level of anxiety).

3.2. Course in early addiction treatment

Data regarding patients' alcohol consumption were obtained from the baseline, 2-week, and 4-week visits. During the first 4 weeks following their baseline assessment, 57% (n = 100) of patients slipped or relapsed on alcohol, whereas 43% (n = 75) were fully abstinent from alcohol. The first slip occurred on average 7.3 days after starting outpatient treatment; the first relapse occurred on average 12.1 days after starting outpatient treatment. A slip was defined as any alcohol consumption on 1 day; whereas a relapse was defined as (a) drinking five or more drinks on 1 day or (b) any drinking on five or more days in 1 week (O'Malley et al., 1992; Volpicelli, Alterman, Hayashida, & O'Brien, 1992).

For the remainder of this article, the sample has been divided into a slip/relapse group and an abstinent group based on their alcohol consumption in these 4 weeks. Early in-treatment indicators for these two groups are presented in Table 1. The two groups were compared using bivariate and multivariate analyses to identify factors that correlate with drinking status in this early phase of treatment and to assess whether their status at 4 weeks predicts later abstinence or relapse.

Table 1
Course in early addiction treatment

Early in-treatment indicators	Slip/Relapse group (n = 100)	Abstinent group (n = 75)
Mean no. of days to first slip [a] (*SE*)	7.26 ± 0.73	≥28
Mean no. of days to first relapse [b] (*SE*)	12.12 ± 1.00	≥28
Mean no. of days of drinking (*SE*)	5.92 ± 0.64	0
Mean no. of days of heavy of drinking (*SE*)	3.36 ± 0.50	0
% early dropout from treatment [c] (*SE*)	15.0 ± 0.50	2.7 ± 0.50

[a] A slip was defined as any alcohol consumption on 1 day.

[b] In accordance with clinical trials for alcohol dependence, relapse was defined as (a) drinking five or more drinks on 1 day or (b) any drinking on five or more days in 1 week (O'Malley et al., 1992; Volpicelli et al., 1992).

[c] All patients remained in active treatment at the 28-day time point. Early dropout was defined as less than 45 days of treatment.

Table 2
Demographic predictors of course in early addiction treatment

Demographic variables	Slip/Relapse group (n = 100)	Abstinent group (n = 75)	p
Age (*SE*)	43.7 ± 1.01	46.6 ± 1.16	*ns*
Gender (%)			
Male	66.0	77.3	
Female	34.0	22.7	*ns*
Marital status (%)			
Single	29.0	26.7	*ns*
Married/Remarried	44.0	38.6	
Separated/Divorced	27.0	32.0	
Widowed	0.0	2.7	
Employment (%)			
Employed full-time	63.0	65.4	*ns*
Employed part-time	16.0	13.3	
Retired/Disabled	6.0	8.0	
Unemployed	15.0	13.3	
Level of education (no. of years ± *SE*)	13.7 ± 0.26	13.5 ± 0.34	*ns*

3.3. Factors that promote or impede the early recovery process

There were no significant differences between the slip/relapse group and the abstinent group with regard to their demographic characteristics (age, marital status, employment, education) or their baseline alcohol use variables (the duration of problem alcohol use, frequency of alcohol use, quantity consumed, age of onset of alcohol problems, and ASI composite score for alcohol problems) as presented in Tables 2 and 3.

However, the groups differed in terms of drug use at intake (i.e., their secondary substances). The group that slipped or relapsed on alcohol during the first 28 days of treatment had a higher rate of secondary substance use, χ^2 = 13.47, df = 3, p = .004, a longer history of secondary substance use, $t(1,171)$ = 3.25, p = .001, as well as a higher ASI composite score for drug problems at intake $t(1,172)$ = 4.64, $p < .001$. However, both the slip/relapse group and the abstinent group had a relatively low severity of drug problems overall, and no patients met criteria for drug dependence (as per this study's exclusion criteria; see Table 3).

In terms of psychosocial factors, there were no significant differences between the slip/relapse group and the abstinent group with regard to their baseline self-reported psychological distress (mean BDI scores, BAI scores, SCL-90-R scores, and ASI composite scores for psychological problems), nor their rates of *DSM-IV* Axis I diagnoses, such as depressive and anxiety disorders, as presented in Table 4. However, the slip/relapse group had a higher rate of

Table 3
Substance use predictors of course in early addiction treatment

Substance use variables	Slip/Relapse group (n = 100)	Abstinent group (n = 75)	p
Duration of EtOH problem (no. of years ± *SE*)	17.65 ± 0.84	19.95 ± 1.12	*ns*
Frequency of EtOH use (no. of days in last 30 ± *SE*)	19.12 ± 0.90	20.15 ± 1.06	*ns*
Amount of EtOH consumed (no. of drinks/day ± *SE*)	10.33 ± 0.47	11.79 ± 0.89	*ns*
Age of onset of EtOH problem (no. of years ± *SE*)	25.48 ± 0.99	26.05 ± 1.10	*ns*
Severity of EtOH problems—ASI CS[a] (*SE*)	0.73 ± 0.02	0.76 ± 0.02	*ns*
Rate of second substance problem	50%	25%	.004
Duration of second substance problem (no. of years ± *SE*)	6.86 ± 1.03	2.53 ± 0.84	.001
Severity of drug problems—ASI CS[a] (*SE*)	0.07 ± 0.01	0.01 ± 0.00	<.001

[a] ASI composite scores (CS) range from 0.00 to 1.00, with 1.00 being the most severe.

DSM-IV Axis II Cluster B PD, $\chi^2 = 11.29$, $df = 2$, $p = .004$, a higher level of impulsivity (mean BIS score), $t(1,173) = 2.85$, $p = .005$, and more severe social problems, $t(1,171) = 2.58$, $p = .011$, than the abstinent group at intake (see Table 4).

3.4. Logistic regression

A logistic regression model was constructed to assess which baseline patient characteristics predicted abstinence versus a slip/relapse in a multivariate context. Step 1 included alcohol use variables; Step 2 included secondary drug use variables; Step 3 included predictors that reflect *DSM-IV* Axis I psychopathology; and Step 4 included predictors that reflect *DSM-IV* Axis II psychopathology (see Table 5).

Although the individual drug use variables did not retain their statistical significance in a multivariate context, the drug use block (Step 2) was significant, $\chi^2 = 25.50$, $df = 4$, $p < .001$. The individual Axis II predictors remained significant in the final model: Cluster B PD ($p = .05$), impulsivity (BIS cognitive subscale; $p = .04$), and severity of social/interpersonal problems (ASI; $p = .03$). Similarly, the Axis II block (Step 4) was significant, $\chi^2 = 20.05$, $df = 6$, $p = .003$: Overall, the model accounted for 37% of the variance in drinking status, $\chi^2 = 50.53$, $df = 17$, $p < .001$.

3.5. Does drinking status at 4 weeks predict later abstinence?

At 12 weeks, 146 patients (83%) met with the CRC to review their alcohol/drug use diaries and document cravings, slips, and relapses; the remaining 29 (17%) refused to participate or could not be contacted. Drinking status at 4 weeks was a significant predictor of alcohol-related outcomes at 12 weeks, including retention in

Table 4
Psychosocial predictors of course in early addiction treatment

Psychosocial measures	Slip/Relapse group (n = 100)	Abstinent group (n = 75)	p
BDI score[a] (*SE*)	20.9 ± 1.16	18.0 ± 1.26	*ns*
BAI score[b] (*SE*)	20.9 ± 1.31	19.4 ± 1.44	*ns*
SCL-90-R GSI (*SE*)	1.27 ± 0.08	1.12 ± 0.08	*ns*
Rates of depressive disorders (SCID)	27%	23%	*ns*
Rates of anxiety disorders (SCID)	38%	35%	*ns*
Rates of PD (SCID-II)	52%	45%	*ns*
Rates of Cluster B PD (SCID-II)	38%	16%	.004
Severity of psych problems—ASI CS[c] (*SE*)	0.31 ± 0.02	0.26 ± 0.03	*ns*
Severity of social problems—ASI CS[c] (*SE*)	0.29 ± 0.03	0.20 ± 0.03	.011
BIS score (*SE*)	53.0 ± 1.74	46.1 ± 1.67	.005

GSI indicates Global Severity Index.

[a] Possible scores range from 0 to 63, with scores of 0 to 9 indicating minimal depression; 10 to 18, mild depression; 19 to 29, moderate depression; and 30 to 63, severe depression.

[b] Possible scores range from 0 to 63, with scores of 0 to 7 indicating minimal anxiety; 8 to 15, mild anxiety; 16 to 25, moderate anxiety; and 26 to 63, severe anxiety.

[c] ASI composite scores (CS) range from 0.00 to 1.00, with 1.00 being the most severe.

Table 5
Logistic regression of drinking status at 4 weeks

Predictors	Abstinence at 4 weeks		
	Wald (*df*)	p	R^2
Step 1: alcohol use			.036
Frequency of EtOH use	0.16 (1)	*ns*	
Amount of EtOH consumed	1.33 (1)	*ns*	
Duration of EtOH problems	1.05 (1)	*ns*	
Severity of EtOH problems (ASI)	0.57 (1)	*ns*	
	Step: $\chi^2 = 4.28$, $df = 4$, p = *ns*		
Step 2: secondary drug use			.233
Any secondary drug use	0.95(1)	*ns*	
Frequency of drug use	0.00 (1)	*ns*	
Duration of drug problems	0.40 (1)	*ns*	
Severity of drug problems (ASI)	3.22 (1)	.07	
	Step: $\chi^2 = 25.50$, $df = 4$, $p < .001$		
Step 3: Axis I psychopathology			.238
Any anxiety diagnosis	0.02 (5)	*ns*	
Any depression diagnosis	0.16 (1)	*ns*	
Severity of psychiatric problems (ASI)	0.14 (1)	*ns*	
	Step: $\chi^2 = 0.70$, $df = 3$, p = *ns*		
Step 4: Axis II psychopathology			.371
Cluster B PD	3.71 (1)	.05	
Non-Cluster B PD	0.73 (1)	*ns*	
Impulsivity—cognitive (BIS)	4.06 (1)	.04	
Impulsivity—motor (BIS)	3.31 (1)	.07	
Impulsivity—nonplanning (BIS)	2.92 (1)	.09	
Severity of social problems (ASI)	4.76 (1)	.03	
	Step: $\chi^2 = 20.05$, $df = 6$, $p = .003$		

treatment, $t(1,173) = 4.95$, $p < .001$, frequency of alcohol consumption at 12 weeks, $t(1,144) = -4.97$, $p < .001$, mean number of drinks consumed per drinking day, $t(1,143) = -3.82$, $p = .048$, and abstinence at 12 weeks, $\chi^2 = 47.96$, $df = 1$, $p < .001$.

4. Discussion

More than half of patients with alcohol use disorders struggled to establish abstinence during the first 4 weeks of this outpatient addictions treatment program. Those patients who failed to maintain abstinence from alcohol experienced their first slip around the 1-week time point, their first relapse within 2 weeks, and demonstrated a greater likelihood of dropping out of treatment by the 4-week mark of the program.

The factors associated with relapse in this study were generally similar to those observed in the alcohol treatment outcome literature (Mammo & Weinbaum, 1993). For example, the use of a secondary illicit drug was negatively associated with abstinence (Booth et al., 2004; Brown et al., 1993; Moos & Moos, 2006). The secondary substances used by this sample included cannabis (6%), cocaine (20%), and benzodiazepines (6%). The impact of cocaine use may have been particularly significant; 26% of the slip/relapse group used cocaine versus only 7% of the abstinent group. However, it is important to note that in this study, no patients who met *DSM-IV* criteria for drug dependence were included in the sample. Accordingly, the sample had a very low overall ASI composite score for drug use severity (0.04). Thus, the negative association between secondary drug use and abstinence is due to the effects of moderate, subsyndromal drug use rather than to those of dependent drug use.

A community-based study ($n = 4{,}422$) by Dawson et al. (2005) assessed the impact of both nondependent and dependent use of illicit drugs on recovery from alcohol dependence. In their large sample, only dependent drug use was a significant negative predictor of abstinence. However, they noted that nondependent drug users favored "nonabstinent recovery" over abstinent recovery. They defined nonabstinent recovery as a return to low-risk drinking. Dawson et al. (2005) suggested that nondependent drug users may tend toward nonabstinent recovery because they have been able to use drugs without developing dependence and may believe that they can achieve nondependent use of alcohol as well. In this study, patients embarking on a course of nonabstinent recovery would have been included in the slip/relapse group.

One of the more robust findings of this study is the negative association between predictors that reflect *DSM-IV* Axis II psychopathology and drinking status. Impulsivity, social/interpersonal problems, and *DSM-IV* Axis II Cluster B PD diagnoses—all were significant predictors of relapse in both bivariate and multivariate analyses. This finding is consistent with the bulk of the treatment outcome literature (Nurnberg et al., 1993; Pettinati et al., 1999; Powell & Peveler, 1996; Verheul et al., 1998; Wagner et al., 2004; Wölwer et al., 2001) and supports the clinical impression that patients with cluster B PD are difficult to treat because they are more difficult to engage in treatment. A concurrent PD diagnosis has been associated with premature discontinuation of outpatient addiction treatment (Powell & Peveler, 1996; Wagner et al., 2004), poorer response to outpatient addiction treatment (Nurnberg et al., 1993; Wölwer et al., 2001), shorter time to alcohol relapse (Pettinati et al., 1999; Verheul et al., 1998; Wagner et al., 2004), and a worse long-term prognosis (Krampe et al., 2006; Powell et al., 1998).

There are likely to be multiple, overlapping reasons why alcoholic patients with cluster B PD fare worse in treatment. The patients with cluster B PD are often the same individuals who use illicit drugs more frequently, have difficulty in their social interactions, and display higher levels of impulsivity—all factors that were independently associated with relapse.

Impulsivity itself is a complex construct. It represents a predisposition toward rapid, unplanned actions that are unduly risky or inappropriate and which often result in undesirable consequences (reviewed in Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Impulsivity may precede the onset of alcohol problems in some individuals. For example, a person with alcohol abuse may drink in a rapid unplanned manner without regard to the consequences. Impulsivity has been consistently linked to both substance use and PD (Moeller et al., 2001), in fact, it is a diagnostic criterion for both B PD and ASPD in the *DSM-IV*. Very few studies have attempted to determine the impact of impulsivity on the course or treatment of substance abuse. However, higher levels of impulsivity (as measured by the BIS) have been associated with earlier age of onset of alcohol problems (Dom, Hulstijn, & Sabbe, 2006) and early addiction treatment dropout (Moeller et al., 2001). In this study, the observed higher levels of impulsivity among those patients who slipped/relapsed in the first 28 days of treatment may reflect an impulsive decision to start treatment, at a time when they are not ready or not motivated.

Although the alcohol treatment literature generally supports the association between measures of addiction severity (e.g., more frequent or heavier alcohol consumption) and worse outcomes (Armor & Meshkoff, 1983; Moos & Moos, 2006), this study found that the extent of alcohol use had less to do with the patients' course in early addiction treatment than personality and behavioral traits such as impulsivity. Alcohol use variables were entered in the first step of the multivariate analysis of drinking status at 4 weeks. However, neither the individual variables nor the overall step were significant in the final model. This may be due, in part, to the restricted range of variance for the alcohol use measures; both patients who slipped/relapsed in the first 28 days of treatment and those who remained abstinent reported high baseline alcohol severity (see Table 3).

The logistic regression model demonstrated that the predictor variables examined in this study accounted for 37% of the variance in drinking status at 4 weeks. The choice of predictor variables was based on the existing alcohol treatment literature but did not include all of the patient characteristics that have been associated with either with remission or relapse of alcohol use disorders. Some important factors, such as self-efficacy or readiness to change, were not included in the study design (Ryan, Plant, & O'Malley, 1995). The selection of predictor variables was based on the author's objective to explore the impact of both Axis I and Axis II psychopathology on early recovery and engagement in treatment. Because of time constraints, the research interviews focused on psychiatric symptomatology and included the use of both the SCID and SCID-II semistructured interviews.

One potential limitation of this study is that neither treatment attendance nor AA participation was included as predictor variables in the multivariate analysis of drinking status at 4 weeks. There is evidence that the number of days spent in treatment is correlated with abstinence following substance abuse treatment (Brewer, Catalano, Haggerty, Gainey, & Fleming, 1998; Toumbouro, Hamilton, & Fallon, 1998). Similarly, attendance of AA or other 12-step meetings has been shown to be associated with better addiction outcome at 6 months and 5 years (Weisner et al., 2003). However, the purpose of the regression analysis was not to account for all the possible variance in outcome but rather to identify the baseline patient characteristics (particularly Axis I and Axis II psychopathology), which predict drinking status at 4 weeks. Moreover, the positive correlation between treatment/AA attendance and abstinence may indicate that less impulsive, more compliant patients who are able to follow treatment recommendations do better in general.

Finally, sample bias and generalizability may also constitute limitations to this study's findings. Of patients who were eligible for the study, 107 (37%) declined to participate. The relatively elevated refusal rate is not that surprising given the population's high level of alcohol severity and the demand characteristics of the study (biweekly meetings with the CRC, extra forms, and lengthy research interviews at baseline and 12 weeks). The resultant sample was restricted to a treatment-seeking outpatient alcoholic population with no comorbid drug dependence who were amenable to research participation.

In summary, treatment-seeking alcoholic patients who reported nondependent use of a secondary substance met criteria for a *DSM-IV* Axis II Cluster B personality disorder, had a higher level of impulsivity and/or more severe social problems at intake, and were more likely to consume alcohol during the first 4 weeks of treatment. The patients who slipped or relapsed early in treatment were likely to continue to struggle to maintain abstinence at the 12-week mark.

It is important for both clinicians and researchers to recognize which patient characteristics may serve as useful screening tools. Identification of alcoholic patients who are more likely to slip or relapse early in treatment may grant an opportunity to prevent them from reexperiencing failure and from losing their motivation and sense of self-efficacy.

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