Published in final edited form as:

Drug Alcohol Depend. 2008 April 1; 94(1-3): 272–275. doi:10.1016/j.drugalcdep.2007.11.002.

Predictors of dropout from group therapy among patients with bipolar and substance use disorders

Fiona S. Graff, Margaret L. Griffin, and Roger D. Weiss

Department of Psychiatry, Harvard Medical School and McLean Hospital, Belmont, MA, 115 Mill Street, Belmont, Massachusetts 02478

Abstract

Objective—Bipolar and substance use disorders frequently co-occur. Integrated treatment for these disorders has been shown to be effective at reducing substance use, but no study has examined attrition from dual diagnosis group therapy. The current study identified baseline demographic and clinical characteristics that predict treatment dropout among patients with co-occurring bipolar and substance use disorders.

Method—Using binary and multivariate analyses, baseline data were analyzed as part of a randomized controlled trial of integrated group therapy for bipolar and substance use disorders.

Results—Cigarette smoking, recent mood episode, and lack of a college education were strong predictors of dropout after controlling for demographic and substance use variables.

Conclusions—Given the strength of smoking as a predictor of dropout as well as the high rate of smoking among this population, a greater focus on the relationship between smoking and bipolar disorder is warranted.

Keywords

Bipolar; substance abuse; dual diagnosis; group therapy; dropout; smoking

1. Introduction

The high rate of substance use disorders among patients with bipolar disorder (Grant et al., 2004) and the poor prognosis associated with the co-occurrence of these disorders (Salloum and Thase, 2000) highlight the particular need for effective treatments for this population. We have developed a new treatment, Integrated Group Therapy (IGT), which has been shown to reduce substance use (Weiss et al., 2000; Weiss et al., 2007). However, no studies have examined treatment retention specifically.

In the current follow-up study to the previous report, we tested a shortened form of IGT, delivered by drug counselors. Baseline predictors of dropout from group therapy were examined among patients diagnosed with both bipolar and substance use disorders. Our aim was to identify baseline demographic and clinical predictors of attrition. Given the lack of

Corresponding author: Margaret Griffin, Ph.D., McLean Hospital, 115 Mill Street, Belmont, MA 02478, Phone: 617-855-2242; Facsimile: 617-855-2699, electronic mail: mgriffin@mclean.harvard.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

research on treatment dropout among this dually-diagnosed population, we chose to compare a range of demographic, substance use, and mood characteristics as predictors of attrition.

2. Method

2.1 Participants and procedures

This study used data collected as part of a group therapy study for patients with co-occurring bipolar and substance use disorders randomized to either IGT or standard Group Drug Counseling. Study inclusion criteria were current diagnoses of bipolar disorder and substance dependence other than nicotine, substance use within the past 60 days, and a mood stabilizer regimen for ≥ 2 weeks. Exclusion criteria included concurrent group treatment, residential treatment restricting substance use, and acute danger to self or others.

Groups met weekly for 12 weeks in the evenings. Before the first session, subjects completed a pre-group interview with the group leader and signed a “contract” emphasizing the importance of consistent treatment attendance. Reminder calls were made the day before each scheduled group session. Patients missing a session without notification were contacted afterwards; transportation was arranged for patients citing travel difficulties. Dropout was defined as missing at least the last 4 groups (i.e., the last 4 weeks, following the method of Siqueland et al., 1998).

Study procedures were reviewed and written informed consent was obtained at the initial appointment. This protocol was approved by the McLean Hospital Institutional Review Board. (See Weiss et al., 2007, for more detail on methods.)

2.2 Measures

Background data were collected via a self-administered questionnaire; diagnostic information was derived from the Structured Clinical Interview for DSM-IV (SCID; First et al., 1996).

2.3 Data analysis

Stepwise logistic regression models identified predictors of treatment group dropout, with $p \leq .10$ in an intermediate model required for retention. Data were analyzed using statistical packages (SPSS 15.0.1 and Stata/SE 8.2.).

3. Results

3.1 Demographic and diagnostic characteristics

Patients included 25 women and 36 men, 18–65 years old (mean=38.3 $\pm$ 11.1), and primarily white (92%). They were generally well-educated (49% graduated from college), yet half (54%) were currently unemployed, and 40% had an annual household income under \$35,000. Most were unmarried (54% never, 16% divorced, and 2% widowed.)

Most patients (79%) had bipolar I disorder; 21% had bipolar II or bipolar disorder not otherwise specified. Most patients (71%) met DSM-IV criteria for mania, depression, or a mixed episode during the 30 days prior to baseline, with a mean of 2.3 $\pm$ 1.7 weeks ill. Most met lifetime dependence criteria for both drug and alcohol dependence (66%), 26% met for alcohol dependence alone, and 8% for drug dependence alone. Just over half (57%) were current smokers, consuming roughly one pack per day (mean=0.9 $\pm$ 0.4).

3.2 Dropout characteristics

Twelve patients (19.7%) dropped out of group therapy: they were younger (31.5 $\pm$ 11.5 vs. 40.0 $\pm$ 10.4; $t(59)=2.47$, $p=.02$), less likely to be college educated (16.7% vs. 57.1%; $\chi^2(1)=6.32$, $p<.$

02), and more likely to be current cigarette smokers (91.7% vs. 49.0%; $\chi^2(1)=7.18$, $p<.01$). Dropouts reported more weeks of mood episodes in the month prior to baseline (3.3 ± 1.0 vs. 2.1 ± 1.8 ; $t(32)=-3.15$, $p<.01$). Group dropout did not vary by race, gender, marital or employment status, household income, treatment group, type of substance or bipolar disorder, multiple substance dependence diagnoses, daily cigarette intake, history of previous individual psychotherapy, or likelihood of 12-step self-help group attendance.

3.2 Multivariate models to predict dropout

Demographic variables were entered on the first step, with less education predicting dropout (see Model 1, Table 1). Substance use variables were added next, with current smoking, as well as education, predicting dropout (see Model 2). Finally, mood was entered (i.e., the occurrence of a mood episode in the baseline month; see Model 3): smoking, lower education level, and a recent mood episode were each significant predictors of dropout in the final model. Backward elimination stepwise regression was run as a reliability check; the similarity of results for both models supported the validity of our model.

Adding substance use variables substantially increased the explained variance ($R^2\Delta=12.4\%$). Adding mood also contributed to predicting dropout ($R^2\Delta=4.5\%$), with education and smoking remaining strong predictors. The odds ratios for the three significant variables in the final model were relatively similar ($OR=8.3-11.5$). The final model appeared to be a remarkably strong predictor of group dropout, with an area under the ROC (Receiver Operating Characteristic) curve of 0.85; the model also produced a pseudo- R^2 of 42.0%.

4. Discussion

We developed a predictive model of dropout from group therapy using baseline demographic, substance use, and mood variables among patients with both bipolar and substance use disorders. Cigarette smoking, a recent mood episode, and having less than a college education were the strongest predictors of treatment dropout after adjusting for demographic, substance use, and mood variables.

Lower educational attainment has previously been found to be correlated with dropout from substance abuse treatment (Sayre et al., 2002; Siqueland et al., 1998). Education is correlated with socioeconomic status, which, in turn, may be associated with greater access to resources making treatment adherence easier (e.g., geographic and job flexibility, insurance coverage; Stark, 1992). Additionally, the educational components of our treatment might have been less appealing to these patients.

Our finding that mood episode at baseline was associated with dropout could reflect the symptoms of bipolar disorder that interfere with daily functioning: impaired judgment, diminished insight, and increased engagement in pleasurable and often risky behaviors; some patients continue to experience functional, social or occupational difficulties related to their disorder even between episodes (American Psychiatric Association, 1994). It is quite possible that current or even residual symptoms made treatment completion particularly difficult for some patients.

We were surprised to find that cigarette smoking was a very strong predictor of dropout in both bivariate and multivariate analyses. High rates of nicotine dependence have been well-documented among both mentally ill and substance-dependent patients (Grant et al., 2004), although nicotine cessation is rarely a major focus of treatment for either mood or other substance use disorders (Currie et al., 2003; Richter et al., 2004). Recent research has identified a potentially deleterious relationship between smoking and mood disorders, with bipolar smokers having an increased number of suicide attempts (Oquendo et al., 2004; Ostacher et

al., 2006), worse illness course (Ostacher et al., 2006), and higher illness severity, including more psychotic symptoms (Waxmonsky et al., 2005), and co-occurring anxiety, attention deficit hyperactivity, and substance use disorders (Ostacher et al., 2006; Waxmonsky et al., 2005). Our finding adds to the growing literature suggesting that cigarette smoking might be associated with a particularly negative course among patients with mood and substance use disorders.

This analysis was limited by several factors, including small sample size. Additionally, our dropout rate was much lower than that seen in community psychiatric and substance abuse treatment programs (Stark, 1992) reflecting the high level of outreach by the study staff (e.g., weekly reminder calls). Further analyses in community settings would be helpful to confirm the generalizability of our results. Smoking data were collected without diagnostic criteria; thus, we were unable to analyze length or severity of nicotine dependence. We did ask subjects to report the number of packs smoked per day, but did not find a correlation with dropout. Extensive nicotine data might enable specification of the complexities of the relationship between smoking and dropout, including identifying moderators of the relationship. Despite the small sample size, however, the final model was a remarkably robust predictor of dropout. Further, given our low dropout rate, the patients who did leave treatment probably represent a particularly difficult to treat subgroup, suggesting a need for enhanced efforts to engage and motivate patients presenting with these baseline characteristics.

This study identifies lower educational attainment, recent mood episode, and smoking as strong baseline predictors of group therapy dropout among people with both bipolar and substance use disorders, frequently co-occurring disorders with a particularly poor prognosis. This study adds to a growing body of literature suggesting that smoking may be an indicator of particularly negative outcomes among patients with bipolar and co-occurring substance use disorders (Oquendo et al., 2004; Ostacher et al., 2006; Waxmonsky et al., 2005), suggesting a need for further research on nicotine use in this population. Clinicians might take note of patients presenting with this constellation of characteristics and enhance efforts at treatment engagement and retention.

Acknowledgements

This work was supported by grants R01 DA15968 and K24 DA022288 from the National Institute on Drug Abuse.

References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Fourth Edition. Washington, DC: American Psychiatric Association; 2000.
- Currie SR, Nesbitt K, Wood C, Lawson A. Survey of smoking cessation services in Canadian addiction programs. *J Subst Abuse Treat* 2003;24:59–65. [PubMed: 12646331]
- First, M.; Spitzer, R.; Gibbon, M.; Williams, J. Structured Clinical Interview for DSM-IV Axis I Disorders, Research Version. Patient Edition. New York: New York State Psychiatric Institute; 1996.
- Grant BF, Hasin DS, Chou SP, Stinson FS, Dawson DA. Nicotine dependence and psychiatric disorders in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Arch Gen Psychiatry* 2004;61:1107–1115. [PubMed: 15520358]
- Grant BF, Stinson FS, Dawson DA, Chou P, Dufour MC, Compton WM, Pickering RP, Kaplan K. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders. *Arch Gen Psychiatry* 2004;61:807–816. [PubMed: 15289279]
- Oquendo MA, Galfalvy H, Russo S, Ellis SP, Grunebaum MF, Burke A, Mann JJ. Prospective study of clinical predictors of suicidal acts after a major depressive episode in patients with major depressive disorder or bipolar disorder. *Am J Psychiatry* 2004;161:1433–1441. [PubMed: 15285970]

- Ostacher MJ, Nierenberg AA, Perlis RH, Eidelman P, Borrelli DJ, Tran TB, Marzilli Ericson G, Weiss RD, Sachs GS. The relationship between smoking and suicidal behavior, comorbidity, and course of illness in bipolar disorder. *J Clin Psychiatry* 2006;67:1907–1911. [PubMed: 17194268]
- Richter KP, Choi WS, McCool RM, Harris KJ, Ahluwalia JS. Smoking cessation services in U.S. methadone maintenance facilities. *Psychiatr Serv* 2004;55:1258–1264. [PubMed: 15534014]
- Salloum IM, Thase ME. Impact of substance abuse on the course and treatment of bipolar disorder. *Bipolar Disord* 2000;2:269–280. [PubMed: 11249805]
- Sayre SL, Schmitz JM, Stotts AL, Averill PM, Rhoades HM, Grabowski JJ. Determining predictors of attrition in an outpatient substance abuse program. *Am J Drug Alcohol Abuse* 2002;28:55–72. [PubMed: 11853135]
- Siqueland L, Crits-Christoph P, Frank A, Daley D, Weiss R, Chittams J, Blaine J, Luborsky L. Predictors of dropout from psychosocial treatment of cocaine dependence. *Drug Alcohol Depend* 1998;52:1–13. [PubMed: 9788001]
- Stark MJ. Dropping out of substance abuse treatment: A clinically oriented review. *Clin Psychol Rev* 1992;12:93–116.
- Waxmonsky JA, Thomas MR, Miklowitz DJ, Allen MH, Wisniewski SR, Zhang H, Ostacher MJ, Fossey MD. Prevalence and correlates of tobacco use in bipolar disorder: Data from the first 2000 participants in the Systematic Treatment Enhancement Program. *Gen Hosp Psychiatry* 2005;27:321–328. [PubMed: 16168792]
- Weiss RD, Griffin ML, Greenfield SF, Najavits LM, Wyner D, Soto JA, Hennen JA. Group therapy for patients with bipolar disorder and substance dependence: Results of a pilot study. *J Clin Psychiatry* 2000;61:361–367. [PubMed: 10847311]
- Weiss RD, Griffin ML, Kolodziej ME, Greenfield SF, Najavits LM, Daley DC, Doreau HR, Hennen JA. A randomized trial of integrated group therapy versus group drug counseling for patients with bipolar disorder and substance dependence. *Am J Psychiatry* 2007;164:100–107. [PubMed: 17202550]

Table 1Stepwise logistic regression models predicting group dropout during baseline month (N = 61)^I

Baseline measures	Model 1 Demographics (p=.062)	Model 2 + Substance use (p<.001)	Model 3 + Mood (p<.001)
Demographic			
Age	0.9 (0.9–1.0)		
Female	1.0 (0.2–4.4)		
Less than college degree	5.6 (0.96–33.1) [†]	9.2 (1.5–55.7) [*]	8.3 (1.4–48.6) [*]
Married	0.7 (0.1–5.2)		
Working	1.4 (0.3–7.6)		
Substance use past month			
Cigarette smoker		15.9 (1.7–152.6) [*]	11.5 (1.2–106.8) [*]
Days used >1 substance		0.9 (0.8–1.1)	
Mood			
Episode in past month			8.5 (0.9–84.3) [†]
Nagelkerke R ²	25.1%	37.5%	42.0%
C statistic	0.78	0.84	0.85

[†]
p<0.10^{*}
p<0.05^I
Coefficients are odds ratios, with 95% confidence intervals.