Published in final edited form as:

Schizophr Res. 2011 November ; 132(2-3): 190–193. doi:10.1016/j.schres.2011.07.033.

ACCURACY OF SELF-REPORTED MEDICAL PROBLEMS IN PATIENTS WITH ALCOHOL DEPENDENCE AND CO-OCCURRING SCHIZOPHRENIA OR SCHIZOAFFECTIVE DISORDER

Zsuzsa Szombathyne Meszaros, M.D., Ph.D.^a, Jacqueline A. Dimmock, Ph.D.^a, Robert Ploutz-Snyder, Ph.D.^b, Sumerendra Vir Singh Chauhan, M.D.^a, Ynesse Abdul-Malak, RN, MPH^a, Frank A. Middleton, Ph.D.^c, and Steven L. Batki, M.D.^{a,d}

^aDepartment of Psychiatry, SUNY Upstate Medical University, Syracuse, NY

^bUniversities Space Research Association, NASA, Houston, TX

^cDepartment of Neuroscience/Physiology, SUNY Upstate Medical University, Syracuse, NY

^dUCSF Department of Psychiatry and San Francisco VA Medical Center, San Francisco, CA

Abstract

Background—Schizophrenia and alcohol dependence (AD) are both major risk factors for a variety of medical problems, yet little is known about the medical status of patients in whom both conditions coexist.

Objective—To assess accuracy of self-reported medical problems and to compare the accuracy reports in patients with schizophrenia or schizoaffective disorder and co-occurring AD compared to patients with AD only and to controls. Our hypothesis was that medical problems are under-reported in patients with co-occurring disorders, possibly due to the combination of alcohol use and symptoms of schizophrenia.

Methods—Self-reported medical diagnoses were recorded and compared to medical records obtained from all area hospitals in 42 patients with schizophrenia and AD, 44 patients with schizoaffective disorder and AD, 41 patients with AD only, and 15 control subjects. Patients underwent a medical history, physical examination, and review of medical records.

Results—Patients with schizophrenia or schizoaffective disorder and co-occurring AD underreported their medical problems significantly more than patients with AD only and controls. Accuracy of self report was significantly lower in patients with schizophrenia-spectrum disorders plus co-occurring alcohol dependence than in AD alone or in controls. The most commonly underreported diagnoses included coronary artery disease, chronic renal failure, seizure disorder, hyperlipidemia, asthma and hypertension.

Discussion—In order to detect potentially unreported medical conditions in patients with co-occurring schizophrenia/schizoaffective disorder and alcohol dependence, the use of targeted

© 2011 Elsevier B.V. All rights reserved.

Address for correspondence and reprint requests: Zsuzsa Szombathyne Meszaros, M.D., Ph.D., SUNY Upstate Medical University, Department of Psychiatry, 750 East Adams Street, Syracuse NY 13210, meszaroz@upstate.edu, Phone: 315-464-1705, Fax: 315-464-1719.

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.

screening questionnaires is recommended in addition to physical examination and thorough review of medical records.

Keywords

alcohol; schizophrenia; schizoaffective disorder; medical illness; self-report

1. INTRODUCTION

Schizophrenia has been described as a “life-shortening disease” (Capasso et al. 2008, Colton and Manderscheid, 2006, Lambert et al. 2003). In the United States life expectancy is significantly shorter and mortality rates are significantly higher for patients with schizophrenia, compared to the general population. Over one-third of patients with schizophrenia meet criteria for an alcohol use disorder (AUD) – over three times the prevalence in the general population (D’Souza et al. 2006, Green and Brown 2006, Jeste et al. 1996, Regier et al. 1990). Excluding nicotine, AUDs are the most common co-occurring substance use disorders (SUDs) in schizophrenia (Drake and Mueser, 2002).

It has been estimated that more than 50% of patients with schizophrenia have another medical diagnosis (Mitchell and Malone, 2006). The most prevalent medical problems in this population include diabetes (Dixon et al. 1999, Muir-Cohrane, 2006), hyperlipidemia (Lambert et al. 2003), obesity (Lambert et al. 2003, Goff et al. 2005), COPD (Carney et al. 2006), cardiovascular disease (notably hypertension) (Lambert et al. 2003, McCradie et al. 2003), and hepatitis (Lambert et al. 2003, Carney et al. 2006, Nasrallah 2005). Shorter life expectancy is due mainly to cardiovascular disease (CVD) (Fleischhacker et al. 2008) associated with the frequent occurrence of low HDL, high triglyceride levels (Nasrallah et al. 2006), smoking and substance abuse (Green et al. 2007).

AUDs increase the likelihood of developing a wide range of medical problems (De Alba et al. 2004, Liskow et al. 2000). Excessive alcohol use affects numerous body systems including the nervous, gastrointestinal, hematopoietic, cardiovascular, and endocrine systems. Heavy alcohol use is also associated with an increased risk of cancer.

Schizophrenia and alcohol use disorders are therefore both independent major risk factors for a variety of medical problems. Patients with schizophrenia and co-occurring SUDs have higher morbidity than patients with schizophrenia alone (Dickey et al. 2002, Batki et al. 2009). Medical conditions may go unrecognized and undertreated, placing this patient population at a higher risk. General health care may be neglected in these patients (Nasrallah et al. 2006, De Alba et al. 2004, Liskow et al. 2000) because of barriers between mental health and general health services, stigma, cognitive problems due both to substance use and to schizophrenia, and problems with adherence (Meyer and Nasrallah 2003, Druss, 2002, Druss and Rosenheck 1998). Inadequate recognition of medical illness and poor access to care may contribute to the high morbidity and mortality of patients with schizophrenia and AUD, compared to the general population (Dixon et al. 1999, Nasrallah et al. 2006, Batki et al. 2009).

The aim of the present study was to assess and compare accuracy of self reported medical problems in patients with schizophrenia or schizoaffective disorder plus AD, patients with AD and in control subjects. We also aimed to identify the most commonly underreported medical diagnoses. We examined possible relationships between accuracy of self report and demographic variables, alcohol and other substance use severity, psychiatric symptom severity, and number of verified medical diagnoses. Our hypothesis was that self-report of medical history is less accurate in patients with co-occurring alcohol dependence and

schizophrenia/schizoaffective disorder compared to those with alcohol dependence only or to controls..

2. METHODS

2.1. PARTICIPANTS

We obtained data from a total of 142 participants enrolled in two NIAAA-funded parent studies. The *first study* was a double-blind, placebo controlled trial of directly monitored naltrexone treatment for alcohol dependence in schizophrenia (Batki et al. 2009). Participants were 86 patients with schizophrenia or schizoaffective disorder, and co-occurring alcohol dependence, recruited from community mental health clinics in Syracuse, New York. Forty-four had schizoaffective disorder and 42 had schizophrenia. We analyzed baseline data collected during the screening phase. The *second study* was designed to examine genetic biomarkers of ethanol-induced brain damage in non-treatment seeking patients with alcohol dependence (N=41), and controls recruited from the community (N=15). All patients in both parent studies provided informed consent.

2.2. ACCURACY OF SELF-REPORT

All patients underwent a detailed structured medical history, physical examination, and review of all available medical records. Medical records were requested going back 6 months prior to the time of enrollment in the two parent studies. Self-reported medical problems were documented and compared to problems obtained from medical records (outpatient clinic charts, inpatient discharge summaries, and emergency room visit records) requested from all local hospitals in the Syracuse metropolitan area. Accuracy was calculated as percent of verified medical conditions reported in patients who had at least one medical condition. The numerical difference between verified and self reported medical diagnoses was determined for each subject as a measure of underreporting of medical problems.

2.3. DEMOGRAPHIC VARIABLES

Baseline demographic data included age, gender, race, level of education, and employment status.

2.4. MEASURES OF ALCOHOL AND SUBSTANCE USE

Alcohol and substance use and diagnoses were assessed with the Timeline Follow-Back (TLFB) interview (Sobell et al. 1985) and the Structured Clinical Interview for DSM-IV (SCID) (First et al. 2001).

2.5. MEASURES OF PSYCHIATRIC SEVERITY

Schizophrenia symptoms were assessed by the Positive and Negative Syndrome Scale (PANSS) (Kay et al. 1987). Interviewers were certified by the PANSS Institute. Diagnosis of schizophrenia vs. schizoaffective disorder was determined using the SCID. Severity of depression was assessed with the Calgary Depression Scale for Schizophrenia [CDSS] in patients with schizophrenia or schizoaffective disorder (Addington et al. 1993).

2.6. STATISTICAL ANALYSES

Statistical analyses were performed using IBM SPSS (Statistical Package for Social Sciences), version 18 software (IBM Co., Somers, NY). All tests employed two-tailed alpha to reject the null of 0.05. Wilcoxon signed ranks test was applied to compare number of medical diagnoses reported vs. number of verified medical diagnoses in each subject (measure of underreporting). Kruskal-Wallis test was used to compare accuracy of self

report between groups (schizophrenia/AD vs. schizoaffective/AD vs. AD vs. control patients). Mann-Whitney U-test was used to compare underreporting in each group. Pairwise association (Spearman's rho coefficient) was performed using the data of 142 subjects to assess the association between accuracy of self report and the following measures:

1. demographic variables: age, gender, years of education, and employment status
2. alcohol and other substance use variables: number of drinking days/month, number of standard drinks/week, number of cigarettes/week, cocaine use (number of days/month), cannabis use (number of days/month)
3. variables describing severity of psychiatric symptoms: PANSS positive, negative, and general scores, the PANSS composite index (positive minus negative scale score) Calgary Depression Scale for Schizophrenia
4. number of total verified medical diagnoses.

3. RESULTS

Demographic data, number of verified and reported medical diagnoses, psychiatric symptom severity and alcohol and substance use are summarized in Table 1. The majority of patients with schizophrenia, schizoaffective disorder, and alcohol dependence were middle-aged, male, Caucasian, single, unemployed and supported on welfare or disability payments. Control patients included a higher proportion of women, were more likely to be employed and smoked less. PANSS positive and negative scores were moderately low in the schizophrenia/schizoaffective disorder patients as compared to the inpatient standard used as a normative group in PANSS manual (Kay et al. 2006).

Patients with alcohol dependence drank significantly more than controls and patients with schizophrenia/AD. Schizoaffective patients drank significantly more than patients with schizophrenia. There was no significant difference in drinking severity between schizoaffective/AD vs. AD patients. Patients with schizoaffective disorder and AD had significantly more verified medical problems (on average, 3.3) compared to controls, patients with schizophrenia/AD, and patients with alcohol dependence only (Table 1.).

Subjects with alcohol dependence, schizophrenia/AD or schizoaffective disorder/AD underreported their medical problems. The number of self-reported medical problems was significantly lower than the actual verified number of diagnoses in subjects with schizophrenia/AD (Wilcoxon test $p=0.001$), schizoaffective disorder/AD (Wilcoxon test $p<0.001$), and alcohol dependence only (Wilcoxon test $p=0.039$). By contrast, control subjects accurately reported nearly all (98%) of their medical problems. Patients with schizophrenia plus AD and with schizoaffective disorder plus AD were significantly less accurate in reporting medical conditions than either patients with AD alone ($p=0.027$ and $p<0.001$, respectively) or controls ($p=0.043$ and $p=0.002$, respectively) (Mann-Whitney U test). There was no significant difference in accuracy between patients with AD alone and controls.

Although accuracy of self-report was significantly lower in schizophrenia/schizoaffective disorder plus AD, accuracy was independent of measures of alcohol and other substance abuse severity or psychosis severity (PANSS scores), as well as of age, gender, employment, and education. Accuracy of self-report correlated negatively with the total number of verified medical diagnoses in patients with alcohol dependence, schizophrenia/AD and schizoaffective disorder/AD. Results of the association analyses are summarized in Table 2.

The most commonly underreported medical diagnoses in patients with schizophrenia/AD and schizoaffective disorder/AD were coronary artery disease (5 of 5, 100% not reported), chronic renal failure (2 of 2, 100% not reported), osteoarthritis and degenerative disk disease (6 of 12, 50% not reported), seizure disorder (2 of 6, 33% not reported), gastro-esophageal reflux disease (6 of 21, 29% not reported), hyperlipidemia (4 of 18, 22% not reported), asthma (3 of 19, 16% not reported), and hypertension (5 of 37, 14% not reported).

4. DISCUSSION

The aim of the present study was to assess accuracy of self-report of medical problems in patients with schizophrenia or schizoaffective disorder and co-occurring alcohol dependence compared to patients with alcohol dependence only, and to controls. In contrast with the previously reported high accuracy of self-reported drug and alcohol use in research settings (Dennis et al. 2004), self-report regarding medical problems was of limited accuracy in patients with alcohol dependence only, and was significantly less accurate in patients with co-occurring schizophrenia/AD and schizoaffective disorder/AD. Even though patients in this study reported the majority of their medical problems, a substantial portion of their chronic medical conditions was unreported. While patients with co-occurring schizophrenia-spectrum disorder and AD were more inaccurate in reporting medical problems than those with AD only, accuracy of self report did not correlate significantly with measures of alcohol use and psychosis severity but did correlate negatively with number of medical diagnoses. The lack of significant correlation between accuracy of self-report and selected measures psychosis and substance use severity in this small cohort does not rule out the potential influence of psychosis and substance use severity on accuracy.

The strengths of the present study are that medical problems and substance use disorders were thoroughly assessed through different means: physical examination, laboratory tests, self report, diagnostic interviews and comprehensive review of medical records. Since the Syracuse metropolitan area has only five major medical centers, it was possible to obtain medical records from all area hospitals, and the chance of missing important diagnoses was therefore low. Study measures were carried out by trained medical research staff, who evaluated patients in a highly structured format, possibly leading to greater accuracy than everyday clinical practice. Weaknesses of this study are the limited cohort size and cross-sectional nature, and the absence of a schizophrenia-only control group. Another important limitation is the presence of multiple significant demographic differences between the control group and patient groups.

Physicians are often unaware of the numerous chronic medical conditions present in patients with schizophrenia-spectrum disorders and alcohol dependence. Our findings indicate that the combination of these disorders is associated with less accurate reporting of medical problems than controls and even patients with alcohol dependence alone. Therefore, self-report may not be reliable in these patients, especially if they have multiple medical problems. We recommend performing a physical examination and reviewing all available medical records thoroughly when treating patients with schizophrenia-spectrum disorders and co-occurring alcohol dependence. The use of targeted screening forms including questions about the commonly-occurring medical illnesses found in this population (Batki et al., 2009) may aid in improving the medical care of these vulnerable patients.

References

- Addington D, Addington J, Maticka-Tyndale E. Assessing depression in schizophrenia: the Calgary Depression Scale. *Br J Psychiatry Suppl.* 1993; (22):39–44. [PubMed: 8110442]

- Batki SL, Dimmock JA, Ploutz-Snyder R, Meszaros ZS, Canfield K. Directly monitored naltrexone reduces heavy drinking in schizophrenia: Preliminary analysis of a controlled trial. *Alc Clin Exp Res Suppl.* 2009; 33(6):116A.
- Batki SL, Meszaros ZS, Strutynski K, Dimmock JA, Leontieva L, Ploutz-Snyder R, Canfield K, Drayer R. Medical comorbidity in patients with schizophrenia and alcohol dependence. *Schizophr Res.* 2009; 107(2–3):139–146. [PubMed: 19022627]
- Capasso RM, Lineberry TW, Bostwick JM, Decker PA, St Sauver J. Mortality in schizophrenia and schizoaffective disorder: an Olmsted County, Minnesota cohort: 1950–2005. *Schizophr Res.* 2008; 98(1–3):287–294. [PubMed: 18031996]
- Carney CP, Jones L, Woolson RF. Medical comorbidity in women and men with schizophrenia: a population-based controlled study. *J Gen Intern Med.* 2006; 21(11):1133–1137. [PubMed: 17026726]
- Colton CW, Manderscheid RW. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. *Prev Chron Dis.* 2006; 3(2):A42.
- De Alba I, Samet JH, Saitz R. Burden of medical illness in drug- and alcohol-dependent persons without primary care. *Am J Addict.* 2004; 13(1):33–45. [PubMed: 14766436]
- Dennis ML, Funk R, Godley SH, Godley MD, Waldron H. Cross-validation of the alcohol and cannabis use measures in the Global Appraisal of Individual Needs (GAIN) and Timeline Followback (TLFB; Form 90) among adolescents in substance abuse treatment. *Addiction.* 2004; 99(2):120–128. [PubMed: 15488110]
- Dickey B, Normand SL, Weiss RD, Drake RE, Azeni H. Medical morbidity, mental illness, and substance use disorders. *Psychiatr Serv.* 2002; 53(7):861–867. [PubMed: 12096170]
- Dixon L, Postrado L, Delahanty J, Fischer PJ, Lehman A. The association of medical comorbidity in schizophrenia with poor physical and mental health. *J Nerv Ment Dis.* 1999; 187(8):496–502. [PubMed: 10463067]
- Drake RE, Mueser KT. Co-Occurring Alcohol Use Disorder and Schizophrenia. *Alcohol Research and Health.* 2002; 26(2):99.
- Druss BG, Rosenheck RA. Mental disorders and access to medical care in the United States. *Am J Psychiatry.* 1998; 155(12):1775–1777. [PubMed: 9842793]
- Druss BG. The mental health/primary care interface in the United States: history, structure, and context. *Gen Hosp Psychiatry.* 2002; 24(4):197–202. [PubMed: 12100830]
- D'Souza DC, Gil RB, Madonick S. Enhanced sensitivity to the euphoric effects of alcohol in schizophrenia. *Neuropsychopharmacol.* 2006; 31(12):2767–2775.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW., editors. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition (SCID-I/P). American Psychiatric Press, Inc; Washington, D.C: 2001. revision
- Fleischacker WW, Cetkovich-Bakmas M, De Hert M. Comorbid somatic illnesses in patients with severe mental disorders: clinical, policy, and research challenges. *J Clin Psychiatry.* 2008; 69(4):514–519. [PubMed: 18370570]
- Goff DC, Cather C, Evins AE. Medical morbidity and mortality in schizophrenia: guidelines for psychiatrists. *J Clin Psychiatry.* 2005; 66(2):183–194. [PubMed: 15705003]
- Green AI, Brown ES. Comorbid schizophrenia and substance abuse. *J Clin Psychiatry.* 2006; 67(9):e08. [PubMed: 17081075]
- Jeste DV, Gladsjo JA, Lindamer LA, Lacro JP. Medical comorbidity in schizophrenia. *Schizophr Bull.* 1996; 22(3):413–430. [PubMed: 8873293]
- Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr Bull.* 1987; 13(2):261–276. [PubMed: 3616518]
- Kay, SR.; Opler, LA.; Fiszbein, A., editors. Positive and Negative Syndrome Scale (PANSS) Technical Manual. MHS; North Tonawanda, New York: 2006.
- Lambert TJ, Velakoulis D, Pantelis C. Medical comorbidity in schizophrenia. *Med J Aust.* 2003; 178(Suppl):S67–70. [PubMed: 12720526]
- Liskow BI, Powell BJ, Penick EC. Mortality in male alcoholics after ten to fourteen years. *J Stud Alcohol.* 2000; 61(6):853–861. [PubMed: 11188491]

- McCreadie RG. Scottish Schizophrenia Lifestyle Group. Diet, smoking and cardiovascular risk in people with schizophrenia: descriptive study. *Br J Psychiatry*. 2003; 183:534–539. [PubMed: 14645025]
- Meyer, JM.; Nasrallah, HA. *Medical Illness and Schizophrenia*. 1. American Psychiatric Press Inc; Washington D.C: 2003.
- Mitchell AJ, Malone D. Physical health and schizophrenia. *Curr Opin Psychiatry*. 2006; 19(4):432–437. [PubMed: 16721177]
- Muir-Cochrane E. Medical co-morbidity risk factors and barriers to care for people with schizophrenia. *J Psychiatr Ment Health Nurs*. 2006; 13(4):447–452. [PubMed: 16867129]
- Nasrallah HA. An overview of common medical comorbidities in patients with schizophrenia. *J Clin Psychiatry Suppl*. 2005; 66(6):3–4.
- Nasrallah HA, Meyer JM, Goff DC. Low rates of treatment for hypertension, dyslipidemia and diabetes in schizophrenia: data from the CATIE schizophrenia trial sample at baseline. *Schizophr Res*. 2006; 86(1–3):15–22. [PubMed: 16884895]
- Regier DA, Farmer ME, Rae DS. Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) Study. *JAMA*. 1990; 264(19):2511–2518. [PubMed: 2232018]
- Sobell, LC.; Sobell, MB.; Maisto, SA.; Cooper, AM. Time-Line Follow-Back Assessment Method. In: Lettieri, DJ.; Nelson, JE.; Sayers, MA., editors. *NIAA Treatment Handbook Series: Alcoholism treatment assessment research instruments*. Vol. 2. National Institute on Alcoholism and Alcohol Abuse, DHHS Publication; Washington D.C: 1985.

Table 1

Socio-demographic and clinical characteristics

	Control N=15	Alcohol Dependence (AD) N=41	Schizophrenia and AD N=42	Schizoaffective and AD N=44	Kruskal-Wallis ANOVA p N=142
Age (years)	33±13	40±13	41±8	41±9	NS
Gender (Male/Female)	6/9	28/13*	35/7*	27/17*	0.014
Race (Caucasian/African American/Other)	9/3/3	22/16/3	22/17/3	17/18/9	NS
Ethnicity (Not Hispanic/Hispanic)	14/1	40/1	40/2	41/3	NS
Education (years)	16±2	13±2*	12±2*	11±3*	<0.001
Marital status (Never married/Divorced/Married/Other)	11/0/3/1	21/11/6/3	30/2/5/5	26/8/1/9	NS
Employment (yes/no)	10/5	15/26*	4/38*	5/39*	<0.001
Patients without medical problems (N and %)	3 (20%)	8 (20%)	10 (24%)	5 (11%)	NS
No. verified medical diagnoses	2.1±1.9	1.7±1.6	2.1±1.8	3.3±2.6*	0.006
No. of reported medical diagnoses	1.8±1.5	1.5±1.3	1.6±1.4	2.3±1.9	NS
Accuracy (%) (p25-p50-p75)	97.9±7.2 (100-100-100)	91.8±19.8 (100-100-100)	79.2±30.2 (67-100-100)	73.3±31.1* (50-83-100)	<0.001
Under-reporting (No. of diagnoses not reported)	0.3±0.7	0.2±0.9	0.5±1.0*	1.0±1.6*	<0.001
No. of standard drinks/week	0.1±0.3	32±26*	27±37*	38±40*	<0.001
No. of drinking days/month	0±0	19±8*	12±8*	17±9*	<0.001
Calgary Depression Score	N/A	N/A	3.5±3.6	7.0±3.7	<0.001
PANSS Positive Score	N/A	N/A	14.1±4.9	16.0±5.1	NS
PANSS Negative Score	N/A	N/A	15.5±5.9	11.7±2.9	0.002
PANSS General Score	N/A	N/A	31.7±7.0	32.9±6.8	NS
PANSS Composite Index	N/A	N/A	-1.3±7.8	4.4±5.8	0.001
Cocaine use (days/month)	0±0	0±0	1±3	3±6	NS
Cannabis use (days/month)	0±0	0±0	4±8	9±12	NS
Cigarettes per week	20±75	51±73*	110±108*	109±88*	<0.001

N=142, values are mean±S.D. unless stated otherwise. NS=nonsignificant; AD=Alcohol Dependence;

* significant compared to controls; p25-p50-p75=lower quartile-median-upper quartile

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

Table 2

Correlation analyses between under-reporting of medical diagnoses and demographics, medical illness burden, alcohol and addiction severity and psychiatric severity.

	Control	Alcohol Dependence (AD)	Schizophrenia and AD	Schizoaffective and AD
N	15	41	42	44
Demographics				
Age (Years)	0.310 (NS)	0.201 (NS)	0.080 (NS)	0.101 (NS)
Gender (Male/Female)	0.327 (NS)	0.086 (NS)	−0.247 (NS)	0.248 (NS)
Race (Caucasian/Other)	0.140 (NS)	0.266 (NS)	0.003 (NS)	0.109 (NS)
Education (years)	0.263 (NS)	0.098 (NS)	0.168 (NS)	0.075 (NS)
Employment (yes/no)	0.189 (NS)	−0.121 (NS)	−0.072 (NS)	−0.064 (NS)
Medical Illness Burden				
Number of Verified Medical Diagnoses	0.348 (NS)	0.448 (0.003)	0.609 (<0.001)	0.655 (<0.001)
Addiction and alcohol severity				
Cocaine use (days/month)	N/A	N/A	−0.044 (NS)	0.257 (NS)
Cannabis use (days/month)	N/A	N/A	−0.148 (NS)	−0.184 (NS)
Number of cigarettes smoked/week	−0.077 (NS)	0.293 (NS)	−0.155 (NS)	0.130 (NS)
Number of drinking days/month	N/A	0.032 (NS)	−0.047 (NS)	0.148 (NS)
Number of standard drinks/week	N/A	−0.186 (NS)	−0.020 (NS)	0.186 (NS)
Psychiatric Severity				
PANSS Positive Score	N/A	N/A	−0.035 (NS)	−0.072 (NS)
PANSS Negative Score	N/A	N/A	−0.072 (NS)	−0.078 (NS)
PANSS General Score	N/A	N/A	−0.179 (NS)	0.004 (NS)
PANSS Composite Index	N/A	N/A	0.022 (NS)	−0.040 (NS)
Calgary Depression Score	N/A	N/A	−0.323 (0.037)	0.041 (NS)

N=142, values are Spearman's Rho coefficients (p), (NS)=nonsignificant; AD=Alcohol Dependence.