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Course of Psychiatric Symptoms and Abstinence among Methamphetamine Dependent Persons in Sober Living Recovery Homes

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Abstract

Background—Although studies of co-occurring psychiatric disorders among methamphetamine (MA) dependent persons have been conducted in treatment programs, none have examined them in service settings used to sustain long-term recovery, such as sober living houses (SLHs).

Methods—Residents entering SLHs (N=243) were interviewed within two weeks and at 6-, 12-, and 18-month follow-up. Measures assessed psychiatric symptoms using the Brief Symptom Inventory (BSI), past year drug and alcohol dependence, and abstinence over 6-month time periods.

Results—Overall, severity of psychiatric symptoms on the BSI were similar among MA dependent and other dependent residents. Global psychiatric severity, depression and somatization scales on the BSI predicted abstinence for both groups. However, phobic anxiety and hostility scales were associated with abstinence for MA dependent residents but not for those dependent on other substances.

Conclusion: The similarity of psychiatric symptoms among persons with and without MA dependence in SLHs is different from what studies have found in treatment programs. The association between psychiatric symptoms and abstinence for both groups suggests SLHs should consider provision of on- or off-site mental health services. Additional research is needed to understand why phobic anxiety and hostility are associated with abstinence among MA dependent residents but not those dependent on other substances.

Keywords

Recovery home; sober living house; psychiatric symptoms; Brief Symptom Inventory; methamphetamine

Numerous studies of alcohol and drug treatment show high psychiatric severity predicts worse outcome (e.g. Broome, Flynn & Simpson 1999; Compton, Cottler, Jacobs, Ben-Abdallah, & Spitznagel 2003; McLellan, Luborsky, Woody, O'Brien & Druley 1983; Ritsher,

McLeller, Finney, Otilingam & Moos 2002). Psychiatric severity is particularly problematic for individuals entering treatment for methamphetamine (MA) dependence because they often present more severe co-occurring psychiatric disorders than individuals dependent on other substances (Nakama, et al. 2008; Rawson, et al. 2000). Glassner-Edwards and colleagues (2010) assessed the presence of DSM IV psychiatric disorders 3 years after participants entered treatment and found those with Axis I disorders had higher rates of MA use. No studies that we know of have examined the effects of psychiatric symptoms among MA dependent persons in community-based service settings designed to sustain a long-term recovery lifestyle. Examples of such services include 12-step groups, neighborhood recovery centers, and recovery homes (Wittman & Polcin, 2014). One difference with formal treatment is a primary reliance on peer support as the main therapeutic factor. In addition, many of these services have self-determined lengths of involvement where consumers can access services as long as they wish.

There is growing consensus among addiction researchers and practitioners that improving long term outcomes will require attention to services in the community that address the ongoing needs that individuals continue to experience after they leave treatment (McLellan 2002). Sober living houses (SLHs) are good examples of such services because they provide social support for recovery within an alcohol- and drug-free living environment that supports sustained abstinence. SLHs are a type of recovery housing that emerged in the 1940's in California as a response to housing needs among person attempting to engage in the recovery process. There are currently nearly 800 houses in the state associated with SLH organizations that monitor and certify houses, which include the sober Living Network and the California Association of Addiction Recovery Resources (Wittman & Polcin 2014).

Unlike residential treatment settings, SLHs generally do not provide group or individual counseling, case management, or other on-site services. However, residents are either encouraged or required to attend 12-step meetings. Additionally, residents can stay in SLHs as long as they wish, provided they abide by house rules (such as maintaining abstinence from alcohol and drugs) and pay fees for rent and utilities. Although SLHs have a manager living with the residents, a social model philosophy of recovery (Polcin, Mericle, Howell, Sheridan & Christensen 2014) is promoted that emphasizes resident input into house operations and management, peer support for recovery, and resident participation in household decision making. SLHs can serve persons in recovery at various stages in the recovery process, including after residential treatment, during outpatient treatment, and after release from incarceration (Polcin & Henderson 2008). They also can serve as an alternative to formal treatment.

Since 2003 researchers at the Alcohol Research Group have conducted studies of SLHs in Northern and Southern California. A number of these studies provide support for the role of SLHs in promoting recovery from alcohol and drug addiction. A longitudinal study tracking 300 individuals residing in 20 different SLHs in Northern California over an 18-month period showed significant improvements on a wide variety of outcomes including alcohol and drug use, severity of alcohol and drug problems, employment, and arrests (Polcin, Korcha, Bond & Galloway 2010a; Polcin, Korcha, Bond & Galloway 2010b).

Importantly improvements between baseline and 6-month follow-up were maintained at 12 and 18 months even though the majority of residents left the SLHs by 18 months.

Assessments of psychiatric symptoms among SLH residents have included several analyses. For example, using the Global Severity Index (GSI) from the Brief Symptom Inventory (Derogatis 1993) Polcin, Korcha, and Bond (2015) assessed how overall psychiatric severity interacted with motivation to affect outcome. Although overall psychiatric severity decreased over time, persons with high severity were less motivated because they viewed abstinence as difficult and that view was associated with worse outcome. In a different analysis Polcin, Korcha, Gupta, Subbaraman & Mericle (in press) assessed overall psychiatric severity on the BSI as well as four factor based subscales: depression, somatization, phobic anxiety and hostility. Overall severity and all four subscales were associated with the likelihood of abstinence. The current paper builds on these findings by comparing these scales between residents dependent on MA versus those dependent on other substances. Our paper is the first to compare these two groups in terms of the trajectories of their psychiatric problems and how those problems relate to abstinence.

One previous analysis focused on on psychiatric symptoms at baseline among SLH residents dependent on MA (Polcin, Buscemi, Nayak, Korcha & Galloway, 2012). That analysis used the Psychiatric Diagnostic Screening Questionnaire (Zimmerman 2002) to study the prevalence of psychiatric symptoms at baseline among persons dependent and not dependent on MA. There was a trend toward women with MA dependence meeting screening criteria for various psychiatric disorders. However, there were no differences between the groups for men.

Using the same database, the current paper goes beyond these earlier findings. While the earlier paper only assessed baseline measures, the current paper assesses the trajectories of psychiatric problems across 18 months. Second, the earlier paper did not present associations between psychiatric symptoms and outcome. The paper simply compared the presence of positive screens for psychiatric disorders between men and women who had past year MA dependence. The current paper assess how global psychiatric severity and specific types of psychiatric symptoms are associated with abstinence across 18 months. Finally, the earlier paper used the Psychiatric Diagnostic Screening Questionnaire, which uses cut points on scales to screen for the presence or absence of psychiatric disorders. The current paper uses the Brief Symptom Inventory, which consists of interval level scales that assess different dimension of psychological distress.

Methods

Data Collection Site

Study Participants were recruited from Clean and Sober Transitional Living (CSTL) in Sacramento County. At the time the data were collected CSLT operated 16 freestanding SLHs with a 136 bed capacity. The program offered no onsite treatment services, but residents were required to attend mutual help 12-step meetings. The houses were divided into two phases. Phase I houses were for entering residents and they were designed to orient the resident to the program and help them establish a recovery program. Phase II houses

were for residents who had successfully completed phase I (typically 30 days or more) and allowed for more autonomy in the community. All houses had a house manager who monitored daily operations and resident compliance with expectations. A more complete description of CSTL can be found in Polcin and Henderson (Polcin & Henderson 2008).

Participants

Baseline characteristics of the 243 SLH residents included in the analyses are shown in Table 1 stratified by those with and without DSM-IV MA dependence. A majority of the participants (nearly 53%) met criteria for MA dependence. Alcohol and cocaine were the next most common substances and others (e.g., cannabis and opiate dependence) were less frequent (not shown). Fifteen persons did not have substance dependence during the past year because they came from controlled environments, most commonly state prison. Most of the participants were male (77%) and white (72%). Although larger proportions of men met criteria for MA dependence (55% for men and 45% for women), the differences were not statistically significant. Table 1 shows that a variety of other characteristics between the two groups did not differ. At baseline, 31% of the combined sample had received psychiatric medications during the 6 months before entering the SLHs and 20% had received some type of psychiatric treatment (not shown). There were no difference between the MA and other dependent groups across all data collection time points. There were a number of areas where there were significant differences between the two groups. MA dependent residents were younger, never married, and had lower income from employment. They were more likely to have never gone to college and they left the SLHs earlier.

Measures

Demographic Characteristics include age, gender, ethnicity, marital status, income, and education. Length of Stay was measured as the number of days in the house.

DSM IV Checklist for Past 12 Months substance use disorders 33 (American Psychiatric Association 2000). Wu et al. (2009) reported Cronbach's alphas >0.8 when used to assess opioid and cocaine dependence. Although the instrument asks about any type of amphetamine use, not specifically MA use, the majority of participants were referring to MA use. The California Department of Alcohol and Drug Programs (2013) reported that MA dependence is the primary drug of choice for Californians entering treatment. The report placed other amphetamines in an "other drug" category that was combined with various substances (e.g., barbiturates, benzodiazepines, nonprescription methadone, ecstasy, inhalants, and other substances). Combined, these substances accounted for less than 7% of primary drugs of choice at treatment entry. This suggests that the majority of persons responding to questions about amphetamines were MA dependent.

Psychiatric symptoms—The Brief Symptom Inventory (Derogatis & Melisaratos, 1983) is a 53-item measure assessing severity of psychiatric symptoms on nine clinical scales as well as three global indices. To test the psychometric properties of the BSI for our sample of persons living in SLHs we conducted exploratory and confirmatory factor analyses collected from participants at baseline and 6-, 12- and 18-month follow-up. For each wave, exploratory factor analysis was performed by employing principle factor (PF),

iterated principal factor (IPF), principal-comparison factor (PCF), and maximum-likelihood (ML) estimators available in Stata, Version 13 (Stata Corp. 2013). Initial exploratory factor models were further examined using varimax and promax rotation specifications. Review of the item loading on factors resulted in a four factor solution: hostility, phobic anxiety, somatization, and depression. Fit statistics for the confirmatory analyses included: chi square, Bayesian information criterion (BIC), comparative fit index (CFI), root mean square error of approximation (RMSEA) and (SRMR) standardized root mean squared residual. The overall GSI and the four subscales demonstrated good internal consistency across administrations ($\alpha=.75-.98$). Because our sample differed from populations on which the BSI has been normed, we used the raw scores (rather than converted T scores) for the GSI and subscales in our analyses. A complete description of the factor analytic methods used and the psychometric properties is available from the first author.

Abstinence was assessed using procedures described by Gerstein et al (1994). Participants were asked how many months they used substance over the past six months. Responses of one or more were coded 1 and responses of none were coded 0. Abstinence was selected as the primary outcome variable because it was the explicit goal of the SLHs. Analysis of abstinence as the primary outcome also provided clear associations with BSI scales that were readily interpretable.

Procedures

To study SLHs as they operate under real-world conditions and thereby maximize generalization of study findings (Polcin 2015), we employed an intent-to-treat design (Hollis & Campbell, 1999) that assessed residents during their first week of entering the houses and again at 6-, 12-, and 18-months. The only exclusion criterion was inability to provide informed consent. Interviews required about 2 hours and participants were paid \$30 for the baseline interview and \$50 for each of the follow up interviews. Study procedures were approved by the Public Health Institute Institutional Review Board and a federal certificate of confidentiality was obtained, adding further protection to confidentiality. The majority of individuals entering the houses participated in the study and over 89% (N=218) of the participants took part in at least one follow up interview. Follow up rates for each time point included 72% at 6 months, 71% at 12 months and 73% at 18 months. At 6 months, 42% of those interviewed were still residing in the SLHs, but that declined to 18% at 12 months and 16% at 18 months. Thus, the improvements noted in our current and previous papers cannot be attributed primarily to the effects of being in a controlled environment.

To assess whether individuals interviewed at follow up differed from those who were not followed, we conducted baseline comparisons. Separate baseline comparisons were made for individuals interviewed and not interviewed at each time point. On each of these three comparisons, we found no differences in terms of demographic characteristics, psychiatric symptoms, and maximum number of days of substance use (alcohol or drugs) per month during the previous 6 months. Thus, the demographic characteristics and problem severity of individuals successfully followed up and lost at follow up were not significantly different. We did find that individuals located and interviewed spent on average more time in the SLHs than individuals lost to follow up.

Analysis Plan

Analyses began with descriptive data showing how the four factor-based clinical scales (Depression, Hostility, Phobic Anxiety and Somatization) and the overall severity index (the GSI) on the BSI differed over the 18-month follow-up period among residents dependent on MA and dependent on other substances. We then developed Generalized Estimating Equations (GEE) to test whether severity of psychiatric symptoms on the BSI clinical and overall severity scales predicted abstinence over time controlling for a variety of demographic characteristics.

Results

Figure 1 shows mean scores for the four BSI clinical scales and the GSI (overall psychiatric severity) at each data time point disaggregated by MA and other dependence. Scores for the GSI and clinical scales were higher than norms for the general population but lower than norms for persons receiving outpatient treatment. Few, if any, participants could be characterized as suffering from severe mental illness. An overall decrease on the GSI over time was found for both groups. GEE models adjusted for baseline characteristics (Table 2) showed a significant non-linear decline over time for the other dependent group (time $p=.016$; quadratic time, $p=.030$) and a marginal linear decline for the MA group (time $p=.069$; quadratic time, $p=.127$). When we conducted post-hoc comparisons (paired t-tests) assessing baseline to specific follow up time points for each group we found a significant decrease on the GSI between baseline and 6 months for the other dependent group ($p<.05$), but the relationship did not continue at 12 or 18 months. None of the other GSI baseline-follow-up comparisons was significant.

Examination of the clinical scales of the BSI showed significant ($p<.05$) overall reductions on depression scores and phobic anxiety scores for both groups (Table 2). There were interesting differences in terms of when improvements occurred for each group. For residents with MA dependence, improvement on the depression and phobic anxiety scales occurred at later follow-up time points. Baseline to follow up comparisons showed significant ($p<.05$) improvement at 12 months for depression and at 12 and 18 months for phobic anxiety. Baseline and 6 month comparisons for both scales were not significant. For the other dependent group, improvements occurred earlier. Depression showed a significant decrease at 6 and 12 months ($p<.05$), but not 18 months. Phobic anxiety and somatization declined only at 6 months ($p<.05$). The hostility scale did not improve over time for either group.

ANOVA procedures were used to compare MA and other dependent groups on the BSI global severity and clinical scales at each time point. No significant differences were found for global severity. However, the MA group reported higher hostility scores at baseline ($p=.034$) and lower phobic anxiety scores at 12 months ($p=.002$) compared with the other dependence group (as displayed in Figure 1).

When we used chi square procedures to assess differences in 6-month abstinence between the two groups we found large differences at baseline (Chi square=20.5; $p<.001$). Among persons in the MA dependent group, only 7.8% reported abstinence over the 6 months prior

to entering the SLH. For the other dependent group the proportion was over 30%. However, at 6 months there was a large increase in abstinence among the MA dependent group (35%) that did not differ significantly from the other dependent group (43%). In addition, abstinence rates between the two groups were not significantly different at 12 or 18 months. GEE models adjusted for baseline characteristics showed significant non-linear effects for abstinence over time both groups. For the MA group abstinence increased at 6- and 12-months (time coefficient = .052, $p < .001$) and then leveled off at 18 months (quadratic time coefficient = $-.002$, $p = .001$). For the other dependent group abstinence increased at 6 and 12 months (time coefficient = .024, $p < .046$) and then declined at 18 months (quadratic time coefficient = $-.002$, $p = .071$). It should be noted that for the MA dependent group abstinence increased at each data collection time point despite the fact that most residents had left the SLHs. The average length of stay for the MA dependent group was about 4 months. For the other dependent group there were smaller improvements across baseline, 6 months, and 12 months, but then a decline at 18 months. The average length of stay for the other dependent group was about 6 months.

A primary aim of this paper was to assess how psychiatric symptoms were associated with abstinence for MA dependent persons and those dependent on other substances. Table 3 shows the results of five GEE models assessing whether the BSI scales predicted abstinence stratified by MA and other dependence. The table also depicts the effects of time and quadratic time. Analyses controlled for gender, age, marital status, and length of stay in the house. Overall psychiatric severity, depression, and somatization on the BSI predicted abstinence for both groups. However, p values were strongest for the MA dependent group. Phobic anxiety and hostility scales were associated with more drug use for MA dependent residents but not those dependent on other substances.

Consistent with unadjusted abstinence rates, all five of the models for the MA dependent group showed time and quadratic time were significant predictors of abstinence when BSI measures were added to the GEE models. Thus, for individuals in the MA dependent group, abstinence improved in a non-linear manner over time. There was a large improvement between baseline and 6 month follow up that mostly leveled off at 12 and 18 months. For the other dependent group the case for improvement on abstinence over time is weaker, but there were trends toward time being a predictor of abstinence on four of the five GEE models.

Discussion

This study is the first to describe the trajectories of psychiatric symptoms among a sample of MA dependent persons entering SLHs. Unlike most studies of MA, which are limited to baseline data, we tracked psychiatric symptoms and substance use over time (18 months) and assessed whether there were differences in psychiatric severity between persons dependent and not dependent on MA. In addition, we examined whether the associations between psychiatric symptoms and substance use differed between persons dependent and not dependent on MA.

Although studies of MA dependence in treatment programs have found psychiatric severity to be higher compared to other substances, (e.g. Nakama et al. 2008; Rawson et al. 2000),

we found few differences in our SLH sample. For MA dependent and other dependent groups there was a modest decline in overall psychiatric severity as measured by the GSI that appeared to be driven largely by decreases in depression and phobic anxiety. Scores on somatization and hostility were largely unchanged or slightly higher for both groups. The overall declines on the GSI for both groups were primarily between baseline and 6 months and leveled off at 12 and 18 months. We saw this same pattern of improvement on a variety of measures in previous studies, including alcohol and drug use, arrests, and employment (Polcin et al. 2010). It should be noted that the sample included levels of psychiatric severity that were mild to moderate and might not generalize to samples with more severe psychiatric problems.

Previous research on psychiatric problems among MA dependent persons in SLHs at baseline found that somatization was particularly high for women (Polcin et al. 2012). Suggestions were made for SLHs to refer these residents to community mental health services, preferably programs with gender specific services. Alternately, SLHs could adapt their operations to allow for on-site workshops and other services to address somatic complaints.

Consistent with MA studies on treatment samples (e.g., Glasner-Edwards et al. 2010) we found higher psychiatric severity predicted worse substance use outcome. Previous analyses of SLHs showed higher overall psychiatric severity and the four factor-based subscales (i.e., depression, somatization, phobic anxiety, and hostility) all predicted worse outcome (Polcin, et al., in press). However, when we assessed the effects of these scales disaggregated by the presence or absence of MA dependence we found important differences. The GSI, depression, and somatization scales predicted worse outcomes for both groups, but the hostility and phobic anxiety scales only predicted outcomes for the MA dependent group. With the exception of hostility at baseline (MA dependence was higher) and phobic anxiety at 12 months (other dependence was higher), severity between the two groups was similar. This suggests that even if hostility and phobic anxiety symptoms are not highly elevated they might have particularly deleterious effects on MA users. Hostility did not improve over time for either group. Thus, services that address hostility might be important for both groups. However, because of its association with abstinence services might be particularly important for MA dependent residents.

Additional research on psychiatric disorders in SLHs is needed to understand a number of our findings. First, it is unclear why some disorders (depression and phobic anxiety) improved over time while others did not (somatization and hostility). It would be interesting to assess if there are individual characteristics or characteristics of SLH social environments that are related to reduction in different psychiatric symptoms. Second, studies are needed to help understand why there were few differences in psychiatric severity between MA dependent and other dependent groups in SLHs when there are often large differences between these groups in treatment programs (e.g. Rawson et al. 2000). At baseline, global psychiatric severity did not differ between the two groups even though the MA dependent persons reported significantly lower abstinence. Finally, additional research is needed to explain the reasons why hostility and phobic anxiety were related to subsequent substance use for MA dependent residents but not for residents with other substance use disorders.

Given the strong associations between psychiatric symptoms and substance use among SLH residents it is incumbent upon SLH organizations to establish collaborative relationships with local community mental health services. Helping residents access these services could have a salutary effect on psychiatric symptoms as well as reduced substance use. Residents with somatic complaints should first access medical services to rule out physical causes of symptoms. One way to facilitate access to both medical and mental health services would be to ensure residents are enrolled in the Affordable Healthcare Act so they are able to afford the help they need. Consistent with the peer based philosophy of sober living houses, managers could encourage peers who have been through the process of accessing healthcare to assist those currently in that process. Help could include provision of information, suggestions about negotiating bureaucratic requirements, and practical help such as accompanying someone to appointments.

Because somatization and hostility symptoms do not appear to improve among SLH residents and predict abstinence for MA dependent residents, targeting these symptoms might be particularly beneficial. In terms of hostility, it is important to contain destructive behaviors that can adversely affect the household environment. SLHs need to have clear rules and policies about managing hostility appropriately and consequences for hostile behaviors toward peers. In addition, there need to be clear mechanisms for addressing resident complaints, grievances, and conflicts. Typically, there are house meetings where these issues can be addressed on a household level, but helping residents practice recovery skills to manage hostility and its sequelae during day to day interactions is important as well (see also. Polcin et al. 2014).

Although SLHs typically do not offer on-site mental health services for residents, modification of this policy might be helpful for persons with more serious psychiatric symptoms. SLHs could invite outside professionals to conduct workshops on topics such as anger management, stress reduction, and managing mental health symptoms such as anxiety. On site activities that can improve overall health and thereby enervate some somatic complaints include regular exercise and healthy nutrition. For persons taking prescribed medication there could be informational workshops addressing their benefits and potential side effects. As described in more detail elsewhere (Polcin, Korch & Bond 2015), on-site services could draw on the peer based model of recovery by involving residents with psychiatric disorders to help one another by offering suggestions about managing symptoms and practical advice about accessing mental health services.

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Figure 1.
Mean scores for BSI clinical scales and GSI over time

Table 1

Sample characteristics at baseline (N = 243).

	MA dependent n=128		Other dependent n=115	
	n	%	n	%
Gender				
Male	103	54.79	85	45.21
Female	25	45.45	30	54.55
Education				
Less than high school	32	62.75	19	37.25
High school or higher	96	50.00	96	50.00
Marital status ^b				
Never married	74	61.16	47	38.84
Other	54	44.26	68	55.74
Race/ethnicity				
White	93	53.14	82	46.86
Other	35	52.24	32	47.76
Employment Income				
None	99	56.25	77	43.75
\$1-999 monthly	22	48.89	23	51.11
\$1,000 + monthly	7	31.82	15	68.18
DSM alcohol dependent				
No	67	53.60	58	46.40
Yes	61	51.69	57	48.31
DSM cocaine dependent				
No	101	54.30	85	45.70
Yes	27	47.37	30	52.63
	mean	(SD)	mean	(SD)
Age (mean) ^a	35.34	(8.86)	39.72	(10.90)
Length of stay at SLH (days) ^c	147.27	(160.79)	188.35	(163.47)
BSI Psychiatric severity				
Global BSI	0.80	(0.75)	0.87	(0.80)
Depression	1.02	(1.01)	1.13	(1.11)
Somatization	0.54	(0.76)	0.67	(0.84)
Hostility	0.61	(0.82)	0.53	(0.67)
Anxiety	0.59	(0.84)	0.58	(0.90)

marital status, age and length of stay included as control variables in all multivariate models. Meth and "other" clients were not different on BSI severity at baseline.

^a p<.001

^b
p<.01

^c
p<.05

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Table 2

GEE models testing whether BSI severity scores change over time

	MA dependent		Other dependent	
	Coef.	95% CI	Coef.	95% CI
Global BSI (DV)				
Time	$\int_{-.025}$	(-.025, .002)	$c_{-.031}$	(-.057, -.006)
Quadratic time	.001	(-.000, .003)	$c_{.002}$	(.000, .003)
Depression (DV)				
Time	$c_{.040}$	(-.077, -.002)	$c_{-.047}$	(-.087, -.007)
Quadratic time	.002	(-.000, .004)	$\int_{.002}$	(-.000, .004)
Hostility (DV)				
Time	-.010	(-.043, .023)	-.009	(-.038, .019)
Quadratic time	.001	(-.001, .003)	.001	(-.001, .002)
Somatization (DV)				
Time	-.003	(-.030, .023)	-.024	(-.054, .005)
Quadratic time	.000	(-.001, .002)	$c_{.002}$	(.000, .003)
Anxiety (DV)				
Time	$c_{-.029}$	(-.058, -.001)	$c_{-.031}$	(-.058, -.004)
Quadratic time	.001	(-.001, .003)	$\int_{.001}$	(-.000, .003)

^a $p < .001$ ^b $p < .01$

All models adjusted for gender, age, marital status, and length of stay in SLH; Adj. CI=Confidence Interval

^c $p < .05$ $\int$ $p < .10$

Table 3

GEE models testing the effects of BSI psychiatric severity and time on abstinence.

	MA dependent		Other dependent	
	Adj. OR	95% CI	Adj. OR	95% CI
Global BSI	^a 0.392	(0.241, 0.636)	^b 0.583	(0.403, 0.842)
Time	^a 1.443	(1.249, 1.667)	1.103	(0.989, 1.230)
Quadratic time	^a 0.988	(0.981, 0.994)	0.995	(0.989, 1.001)
Depression	^a 0.519	(0.366, 0.736)	^a 0.556	(0.420, 0.737)
Time	^a 1.449	(1.252, 1.677)	1.098	(0.982, 1.228)
Quadratic time	^a 0.987	(0.980, 0.994)	0.995	(0.989, 1.001)
Hostility	^b 0.561	(0.378, 0.833)	0.918	(0.638, 1.321)
Time	^a 1.460	(1.268, 1.680)	1.111	(0.999, 1.236)
Quadratic time	^a 0.987	(0.981, 0.994)	0.995	(0.989, 1.001)
Somatization	^a 0.436	(0.275, 0.692)	^c 0.628	(0.437, 0.903)
Time	^a 1.471	(1.273, 1.701)	1.108	(0.996, 1.233)
Quadratic time	^a 0.987	(0.980, 0.994)	0.995	(0.989, 1.001)
Anxiety	^c 0.603	(0.381, 0.955)	0.871	(0.639, 1.186)
Time	^a 1.439	(1.251, 1.655)	1.108	(0.996, 1.233)
Quadratic time	^a 0.987	(0.981, 0.994)	0.995	(0.989, 1.001)

Notes:

All models adjusted for gender, age, marital status, and length of stay in SLH; “Other” dependence includes substance dependence on alcohol or any drugs other than methamphetamines; Adj. OR = adjusted odds ratio; CI=Confidence Interval

^a p<.001

^b p<.01

^c p .05