Requiring Sobriety at Program Entry: Impact on Outcomes in Supported Transitional Housing for Homeless Veterans

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Objective: **An important distinction in models of housing for the homeless is whether programs that require abstinence prior to program admission produce better outcomes than unrestricted programs. Data from a large transitional housing program were used to compare client characteristics of and outcomes from programs requiring abstinence at admission and programs not requiring abstinence.** ***Methods:*** **The U.S. Department of Veterans Affairs (VA) Northeast Program Evaluation Center provided records of individuals who were admitted into, and discharged from, the VA Grant and Per Diem program in 2003–2005. Records contained information from intake interviews, program discharge information, and descriptions of provider characteristics. Analyses were based on 3,188 veteran records, 1,250 from programs requiring sobriety at admission and 1,938 from programs without a sobriety requirement. Group differences were examined with t tests and chi square analyses; predictors of program outcome were determined with logistic regression.** ***Results:*** **Individuals using drugs or alcohol at program admission had more problematic histories, as indicated by several general health and mental health variables, and shorter program stays. There were significant differences between groups in the frequency of program completion, recidivism for homelessness, and employment on program discharge, but effect sizes for these analyses were uniformly small and of questionable importance. Regression analyses did not find meaningful support for the importance of sobriety on program entry on any of the outcome measures.** ***Conclusions:*** **The results add evidence to the small body of literature supporting the position that sobriety on program entry is not a critical variable in determining outcomes for individuals in transitional housing programs. (*Psychiatric Services* 62:1325–1330, 2011)**

The traditional approach to housing intervention for the homeless can be described as a linear model. In this model, promoted by the McKinney Homeless Assistance Act of 1987, homeless individuals move through a sequence of housing settings (from shelter to transitional housing and then to permanent long-term housing), depending on rehabilitation progress (1) or restoration of behavioral self-regulation (2). These programs typically provide services (such as psychiatric treatment, vocational counseling, and life skills management) designed to support rehabilitative and restorative progress for a population characterized by a high prevalence of psychiatric and substance use disorders.

Linear programs uniformly require sobriety and active participation in rehabilitation services as a condition for continued residence; however, there is substantial variability in the requirement for sobriety before program admission. Surprisingly, no study has examined housing intervention outcomes on the basis of this program requirement, but a recent study by Edens and colleagues (3) analyzed outcomes among populations of homeless individuals who were actively using or abstaining when provided supported housing that was not contingent on abstinence or treatment. These investigators compared outcomes from the Collaborative Initiative on Chronic Homelessness program, an evaluation of 11 community programs providing permanent supported housing and comprehensive services. Participants were classified as either high-frequency alcohol or drug users (>15 days of use in the past 30 days; N=120) or abstainers (no use in the past 30 days; N=290) at program entry. At 24-month follow-up there were no significant differences between groups in the number of days housed. High-frequency users

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remained psychiatrically more symptomatic and maintained higher rates of substance use throughout follow-up compared with abstainers; however, their conditions did not worsen, and they were no less successful in maintaining their housing.

In this study we report a constructive replication of the Edens and colleagues (3) study in the context of a long-term transitional housing program. We examined data from programs based on the linear model and compared client characteristics and outcomes for programs that require sobriety at admission and those that do not. Our replication was based on a large national sample of homeless veterans served by community providers funded through the U.S. Department of Veterans Affairs (VA) Grant and Per Diem (GPD) program. This was an informative sample in that veterans comprise 15% of the homeless population (4). The analyses allowed us to examine group differences in client characteristics in these two types of programs and to address the hypothesis initially examined by Edens and colleagues (3) that sobriety at program entry enhances outcomes.

Methods

Sample and data source

Data for this study, which was approved by an institutional review board, were provided by the VA Northeast Program Evaluation Center (NEPEC) and consisted of records of individuals who were admitted into, and discharged from, the GPD program in 2003–2005. The GPD program provides grants to community providers to acquire housing facilities or renovate them (or both) for veterans and provides per diem funds to defray the cost of operations and supportive services. The program provides housing for a period up to two years and is designed as a transitional program leading to permanent housing. Community providers differ in terms of the eligibility requirements for admission and the mix of services provided. Homeless veterans typically enter the program from the street or a shelter but may move into GPD programs directly from a halfway house or other short-term housing situation. To examine program outcomes, we analyzed records for veterans admitted on or after the first day of federal fiscal year 2003 and discharged on or before the last day of fiscal year 2005.

The data set was derived from three sources of information. The first was Form X, a structured interview administered by program staff to veterans entering specialized VA homeless programs that captures sociodemographic, psychosocial, health, housing, and employment information, as well as staff diagnostic impressions based on interview findings and client presentation. The second source was Form D, which captures information (including reason for discharge, place of residence, and work status) at the point of program discharge. The third was the Facility Survey, which provides information about the community provider (such as eligibility requirements and number of housing units). Information from these sources is collected and maintained by NEPEC.

Several restrictions reduced the size of the data set. Because the range of admissions per veteran was large (from one to seven admissions), we used only first admissions for each veteran, resulting in a data set for 17,932 unique veterans who were primarily male (97%) with a mean±SD age of 48.4±8.0. To ensure accurate information from Form X, we required it to have been administered within ten days of program admission. This restriction reduced the data set to 10,188 records. To adequately test the research questions, we also required the veterans to have been homeless for more than 30 days before completion of Form X, to have spent at least 25 of the previous 30 days in a setting that did not prohibit or prevent alcohol or drug use (that is, veterans were not in a prison or hospital), to have been housed in a program that did not exclude veterans with any lifetime history of alcohol or drug abuse, and not to have been discharged from the housing program because of serious general health or mental health problems requiring transfer to acute treatment. Finally, in order to ensure the reliability of the determination of sobriety on admission, we restricted selection of records from programs requiring sobriety at admission (the sober condition) to those that mandated that clients have 14–90 days of sobriety immediately before admission. Programs without a sobriety requirement (the unrestricted condition) admitted clients without regard to alcohol or drug use before admission. The final data set consisted of 3,188 records, 1,250 from programs requiring sobriety at admission and 1,938 from programs not requiring sobriety.

Analyses

Preliminary analyses examined program characteristics of providers. Descriptive statistics and group comparisons for data from these programs were then conducted on variables in the following domains: demographic characteristics, general medical and psychiatric history, work and financial support, and treatment outcomes. Chi square statistics were calculated to determine significant differences between sobriety and unrestricted conditions on categorical variables. Independent-sample t tests were used to examine differences on continuous variables. When Levene's test for homogeneity of variances was significant, the examination of mean differences was adjusted accordingly.

Because the sample was large, we anticipated that many analyses would produce statistically significant results. To guide meaningful interpretation of findings, we calculated effect sizes for all analyses. Cohen's d was computed to provide an effect size for t tests (5). Following Cohen's recommendations, we interpreted absolute values for d of .2, .5. and .8 as indicating small, medium, and large effect sizes, respectively. Absolute values for d that were less than .2 were designated as meaningless, regardless of levels of statistical significance. We calculated Cramér's phi (ϕ) to provide an effect size estimate for chi square analyses (6). Phi is a measure of association between two binary variables and is similar to the Pearson correlation coefficient in its interpretation (7). Again following Cohen (5), we interpreted absolute values of phi of .10, .30, and

.50 as indicating small, medium, and large effect sizes, respectively. Absolute values of phi that were less than .1 were designated as meaningless, regardless of levels of statistical significance. Because we focused interpretation of results primarily on effect sizes, we did not correct p values for the number of analyses that were conducted.

Logistic regression was used to examine predictors of treatment outcomes, with program completion, recidivism for homelessness, housing status, and employment status as outcome variables. In these analyses, predictor variables (demographic variables and psychiatric history variables) and condition (sobriety requirement versus unrestricted) entered the analysis under the forward method of entry with the Wald statistic as a criterion. In order to estimate the amount of variance in outcomes explained by these variables, we calculated the McKelvey-Zavoina index per the recommendation of DeMaris (8). This index also serves as a measure of effect size, with an explanation of 1% of the variance in the dependent variable considered to be the lower boundary of a small meaningful effect (5). Separate logistic regression analyses were conducted for each outcome variable.

The characteristics of our sample and program did not allow us to replicate exactly the analyses of Edens and colleagues (3). They compared substance-abusing housing clients and abstaining housing clients who were being served by the same set of programs. In our analyses, participants in the programs with admission conditional on sobriety were by definition sober for at least two weeks, whereas most participants (60%) in the programs in the unrestricted condition had used alcohol or drugs in the 30 days prior to program admission. We did, however, examine whether there was an interaction of past alcohol or drug abuse (more than 30 days prior to program entry) with program type (sobriety requirement versus unrestricted) on outcomes. These analyses used the same logistic regression approach described above. All analyses were carried out in SPSS, version 18.0 (9).

Results

Program provider characteristics

The 1,938 veterans in the unrestricted condition received services from 59 providers that admitted from one to 181 veterans. The largest provider delivered services to 9% of the sample. The 1,250 veterans in the sobriety condition received services from 49 providers that admitted from one to 373 veterans. One housing provider that required sobriety offered services to more than 10% of the sample, raising the question of whether this provider was unduly influential in affecting results for persons in the sobriety requirement group. To test this possibility, we conducted chi square analyses to compare outcomes between veterans receiving services from this large site and veterans receiving services at all other sites in the study that required sobriety. The analyses revealed that only veterans receiving services at the large site were significantly ($p<.01$) more likely to complete the program (60%) than veterans at the other sites that required sobriety (50%) and were significantly ($p<.01$) more likely to have a residence on discharge (66%) than veterans at the other sites that required sobriety (55%). However, neither of these differences in proportions was large enough to meet the criterion for a small effect size, suggesting that there were no meaningful differences in outcomes between the larger site and other sites that required sobriety. We therefore conducted all subsequent analyses on data from veterans receiving services from all 49 sites that required sobriety. Table 1 provides descriptive statistics and the results of t tests and chi square analyses of comparisons between sites that required sobriety and those that did not.

Demographic characteristics

Examination of demographic characteristics revealed no differences between conditions in age or in the proportions of married veterans or veterans in rural areas. The proportion of white clients was significantly but only slightly higher in the unrestricted programs (Table 1). Comparisons of clients in the two conditions revealed no differences in the proportions who had full-time employment in the previous three years or those who had worked at all in the 30 days before admission. There were also no differences in the proportions of clients receiving VA, non-VA, or other sources of financial support.

Health, substance use, and mental health variables

Numerous comparisons between clients in the two study conditions on measures of general health, substance use, and mental health were conducted. A significant difference of small effect size showed a higher number of reported medical problems (such as diabetes and hypertension) in the unrestricted group. However, no difference was found between groups in the proportion of clients responding to the question of whether they believed they had a serious medical problem, and clients in housing contingent on sobriety were significantly (but only slightly so) more likely to have used VA services in the past six months. Expected significant differences (given the criterion of a minimum of 14 days of abstinence for supported housing programs requiring sobriety) of small to moderate effect sizes were found in comparisons of measures tapping days of alcohol and drug abuse in the month before program admission. Analysis of proportions of clients reporting current substance dependence showed a small effect difference with more frequent use in the unrestricted condition. Even when significant, differences between conditions in other alcohol and drug use variables did not reach the level of a meaningful effect.

A significant difference of small effect size was found between conditions showing that a greater proportion of clients in the unrestricted condition reported experiencing serious depression in the 30 days before program admission (Table 1). A significantly larger percentage of clients in unrestricted programs than in those requiring sobriety also reported suicidal ideation in this same time frame, but the difference was questionably meaningful. There were no differences between clients in the two con-

Table 1

Characteristics and outcomes of veterans in supported housing programs requiring or not requiring sobriety for admission

Variable[a]	Unrestricted (N=1,938)		Sobriety required (N=1,250)		Test statistic	df[b]	p	Effect size[c]
	N	%	N	%				
Demographic								
Age (M±SD)	49.1±7.7		48.6±8.5		t=1.69	2,486	ns	d=.06
White	864	45	514	41	χ^2=4.89	1	<.05	ϕ=.04
Married	88	4	47	4	χ^2=1.14	1	ns	ϕ=.02
Rural	136	7	96	8	χ^2=.49	1	ns	ϕ=.01
Full-time work in past 3 years	744	38	499	40	χ^2=.75	1	ns	ϕ=.02
Any work in past 30 days	478	25	302	24	χ^2=.11	1	ns	ϕ=.01
VA pension[d]	377	20	236	19	χ^2=.16	1	ns	ϕ=.01
Support not from VA	527	27	387	31	χ^2=5.27	1	ns	ϕ=.04
General health, substance dependence, and mental health								
Number of general medical problems	2.4±1.9		2.2±1.9		t=3.74	3,186	<.001	d=.11
Days spent drinking in past 30	6.4±9.7		1.9±5.7		t=16.26	3,160	<.001	d=.55
Days spent intoxicated in past 30	4.2±8.3		1.1±4.2		t=14.18	3,030	<.001	d=.46
Days of drug use in past 30	5.3±9.1		1.4±5.1		t=15.13	3,132	<.001	d=.52
Days of multiple drug use in past 30	2.1±6.0		.6±3.1		t=9.27	3,064	<.001	d=.31
Serious medical problem	952	49	572	45	χ^2=3.47	1	ns	ϕ=.03
Current alcohol dependence	795	41	337	27	χ^2=65.72	1	<.001	ϕ=.14
Past alcohol dependence	1,271	66	709	57	χ^2=24.91	1	<.001	ϕ=.09
Ever hospitalized for alcohol dependence	919	48	487	39	χ^2=27.45	1	<.001	ϕ=.08
Current drug dependence	814	42	349	28	χ^2=65.39	1	<.001	ϕ=.14
Past drug dependence	1,167	60	679	54	χ^2=10.63	1	<.001	ϕ=.06
Ever hospitalized for drug dependence	879	45	526	42	χ^2=3.33	1	ns	ϕ=.03
Current psychiatric problem	946	49	521	42	χ^2=16.05	1	<.001	ϕ=.07
Ever hospitalized for psychiatric problem	564	29	338	27	χ^2=1.71	1	ns	ϕ=.02
Used VA services in past 6 months	1,105	57	773	62	χ^2=6.88	1	<.05	ϕ=.05
Serious depression in past 30 days	931	48	424	34	χ^2=62.04	1	<.001	ϕ=.14
Suicidal ideation in past 30 days	240	12	104	8	χ^2=13.05	1	<.001	ϕ=.06
Suicide attempt in past 30 days	43	2	28	2	χ^2=.02	1	ns	ϕ=.00
Psychiatric medications in past 30 days	530	27	371	30	χ^2=1.82	1	ns	ϕ=.02
Diagnostic impression								
Alcohol dependence	1,166	60	615	49	χ^2=37.05	1	<.001	ϕ=.11
Drug dependence	1,080	56	571	46	χ^2=30.72	1	<.001	ϕ=.10
Schizophrenia	85	4	56	5	χ^2=.02	1	ns	ϕ=.00
Other psychotic disorder	83	4	40	3	χ^2=2.40	1	ns	ϕ=.03
Mood disorder	775	40	381	31	χ^2=29.73	1	<.001	ϕ=.10
Combat posttraumatic stress disorder	114	6	104	8	χ^2=2.01	1	<.01	ϕ=.05
Treatment outcome								
Days in program	91.9±110.8		146.2±147.9		t=11.83	2,137	<.001	d=.43
Program completed	1,005	52	664	53	χ^2=.49	1	ns	ϕ=.01
Reentered a homeless program	332	17	178	14	χ^2=4.73	1	<.05	ϕ=.04
Had residence on discharge	940	49	728	58	χ^2=28.88	1	<.001	ϕ=.10
Employed on discharge	584	30	304	24	χ^2=12.78	1	<.01	ϕ=.06

[a] VA, U.S. Department of Veterans Affairs

[b] Differences in degrees of freedom across analyses are due to missing data.

[c] Significant effects that are at least of small size are Cohen's d values ≥.2 and Cramér's ϕ≥.10.

[d] Benefits were either service connected (for injury or illness sustained during period of military service) or non–service connected.

ditions in suicide attempts or in use of psychiatric medications in the 30 days before program admission

Diagnostic impressions

Staff members of homeless programs suspected high frequencies of diagnoses of alcohol abuse, drug abuse, and mood disorder among clients in both types of housing program (Table 1). These diagnostic impressions were significantly more common in the unrestricted group and were characterized by a small effect size. Clients in housing with a sobriety requirement were significantly more likely than the other clients to be suspected of a diagnosis of posttraumatic stress disorder (PTSD), but this difference was questionably meaningful.

Treatment outcomes

A small and equivalent majority of clients in both groups finished their homeless programs; however, clients in sobriety-required group stayed in

their programs significantly longer. This difference was substantial enough to qualify as an effect of medium size. A significant but small effect was found in favor of clients in the sobriety condition to have a residence on discharge. However, after program discharge, clients in the unrestricted group were significantly more likely to be employed. They were also more likely to reenter a homeless program during the time frame of the study. The effect sizes for these latter two findings call the importance of these findings into question, however.

Predictors of treatment outcomes

We first examined the treatment outcome variables to determine their independence. Intercorrelations among the variables were small ($r<.24$ for all correlations), suggesting little overlap in potential predictive value. Table 2 presents the results of logistic regression analyses conducted to predict treatment outcome, with program completion, recidivism for homelessness, housing status, and employment status as outcome variables. Predictor variables included program type (sobriety required versus not required) and Form X variables included sociodemographic, psychosocial, health, housing, and employment information but excluded variables reflecting current alcohol or drug use or diagnostic impressions of current alcohol or drug abuse.

The regression analyses failed to show the sobriety requirement to be a significant predictor of any program outcome. There were several significant predictors of program completion, recidivism for homelessness, and homeless-on-discharge outcome measures, but none explained sufficient variance in the outcome measure to achieve a small effect size. The entire sets of significant predictors for these outcome measures accounted for less than 3% of the variance (Table 2). Two variables reflecting receipt of VA and non-VA financial support were found to be significant, meaningful predictors of employment on discharge. For both predictors, individuals receiving support were less likely to be employed on leaving the program.

Table 2

Results of four logistic regression analyses examining various outcome variables for veterans in supported housing programs requiring or not requiring sobriety for admission

Outcome variable and significant predictor[a]	B	p	Increase in McKelvey-Zavoina R^2 (%)
Completed program			
Ever hospitalized for psychiatric treatment	–.348	<.001	.6
White	.217	.005	.3
Married	.512	.005	.3
Diagnostic impression of other psychotic disorder	.525	.006	.3
Receiving non-VA financial support	.218	.017	.2
Full-time work in past 3 years	.159	.035	.2
Recidivism for homelessness			
Past alcohol dependence	.377	<.001	.8
Psychiatric medications in past 30 days	–.362	.004	.4
Age	–.015	.020	.3
Any work in past 30 days	–.303	.009	.3
Ever hospitalized for drug dependence	.198	.050	.2
Had residence on discharge			
Full-time work in past 3 years	.293	<.001	.8
Past drug dependence	–.260	<.001	.5
Married	.408	.031	.2
Any work in past 30 days	.202	.033	.2
Diagnostic impression of mood disorder	–.246	.046	.2
Psychiatric medications in past 30 days	.246	.006	.2
Employed on discharge			
Receiving VA financial support	–.998	<.001	3.2[b]
Receiving non-VA financial support	–.487	<.001	1.2[b]
Age	–.025	<.001	.7
Any work in past 30 days	.412	<.001	.7
Number of medical problems	–.081	.027	.2
Serious medical problem	–.253	.009	.2
Psychiatric medications in past 30 days	–.377	.015	.2
Current psychiatric problem	–.257	.010	.2

[a] VA, U.S. Department of Veterans Affairs
[b] Significant effect of at least small size

Interaction of past alcohol or drug abuse with program sobriety

Logistic regression analyses of the effect of past alcohol or drug abuse, program sobriety requirement, and their interaction on program completion, recidivism for homelessness, housing status, and employment status produced an inconsistent pattern of occasional significant results. For each analysis, however, the total contribution to variability in outcome for all three predictor variables was less than 1%.

Discussion

In these analyses we examined a critical question facing those who provide services for people who are homeless: does imposition of a sobriety requirement at program entry have a positive impact on outcomes? In the single extant study addressing this issue, Edens and colleagues (3) reported equal housing outcomes for high-frequency substance users and abstainers over a two-year follow-up. Several findings from our analyses are consistent with the baseline comparisons reported in that study. We also found that individuals who were using drugs or alcohol at program admission had more problematic histories, as indicated by hospitalizations for drug or alcohol dependency and reported general medical problems and presence of PTSD, although the effect sizes for these variables were generally not meaningful. In contrast to the study by Edens

and colleagues, however, we also found that our group in unrestricted housing had a significantly higher frequency of suspected mood disorder, recent episodes of depression, and recent suicidal ideation. The findings generally achieved a small effect size. We also note that the diagnostic impressions may have been affected by the varying levels of sobriety in the two groups. Overall, both studies indicate that the health and mental health of individuals who were actively using was significantly poorer than those who were sober at the point of entry to supported housing. Not surprisingly, we also found that veterans in the unrestricted group had longer and more substantive histories of drug and alcohol dependence.

In examining outcomes, we found a significant difference showing notably longer program stays in the sober condition than in the unrestricted condition, but the direction of causality remains ambiguous because providers who want to offer long-term stays may also be inclined to exclude active substance users. Furthermore, program differences were not reflected in meaningful differences in the frequency of program completion, recidivism for homelessness, or employment on program discharge between the two groups. The analyses of differences in outcomes were not adjusted for specific characteristics of the two groups (such as history of past alcoholic abuse). Our regression analyses, however, did not find meaningful support for the importance of requiring sobriety on program entry on any of the outcome measures. Our analyses of the interaction of substance abuse history prior to 30 days preceding admission and the sobriety requirement also produced no meaningful results. Finally, it should be noted that the outcomes for both groups were not remarkable.

Future studies would be of greater value if they explored the requirement for sobriety not just on admission to a housing program but also throughout the full course of housing interventions in both veteran and nonveteran populations. This might best be accomplished by comparing the linear model with the housing first (10,11) model. This latter model does not require any demonstration of self-sufficiency or self-regulation on admission and places homeless individuals directly into permanent housing even if they are using addictive substances. In a recent review, Kertesz and colleagues (12) reported that studies of housing first documented excellent housing retention but little impact on addiction. In contrast, linear programs were characterized by reductions in addiction severity but shortcomings in long-term housing success. Studies of outcomes from programs based on these two models that incorporate long-term outcome measures in multiple domains (including employment, mental health, and life satisfaction) will facilitate the refinement of programs aimed at reduction of the ranks of the homeless.

Conclusions

The results of this study failed to support the hypothesis that requiring sobriety on program entry enhances outcomes for homeless individuals in transitional housing programs. Future studies should focus on well-articulated models that address the specifics of sobriety not only at program entry but throughout the housing intervention. These studies will be most informative if they assess multiple domains of intervention outcomes at treatment completion and over longer-term follow-up.

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References

1. Couzens SE: Priority: Home! a true priority? an analysis of the federal plan to break the cycle of homelessness. Journal of Social Distress and the Homeless 6:275–282, 1997
2. Sosin MR, Bruni M, Reidy M: Paths and impacts in the progressive independence model: a homelessness and substance abuse intervention in Chicago. Journal of Addictive Diseases 14(4):1–20, 1995
3. Edens EL, Mares AS, Tsai J, et al: Does active substance use at housing entry impair outcomes in supported housing for chronically homeless persons? Psychiatric Services 62:171–178, 2011
4. Veteran Homelessness: A Supplemental Report to the 2009 Annual Homeless Assessment Report to Congress. Washington, DC, US Department of Housing and Urban Development, 2010. Available at www.va.gov/HOMELESS/NationalCenter.asp
5. Cohen J: Statistical Power Analysis for the Behavioral Sciences, 2nd ed. London, Routledge Academic, 1988
6. Lipsey M, Wilson D: Practical Meta-Analysis. London, Sage, 2000
7. Cohen P, Cohen J, West SG, et al: Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences, 3rd ed. London, Routledge Academic, 2002
8. DeMaris A: Explained variance in logistic regression: a Monte Carlo study of proposed measures. Sociological Methods and Research 31:27–74, 2002
9. SPSS. Chicago, SPSS, Inc, 2009
10. Tsemberis S, Elfenbein C: A perspective on voluntary and involuntary outreach services for the homeless mentally ill. New Directions in Mental Health Services 82:9–19, 1999
11. Tsemberis S, Gulcur L, Nakae M: Housing First, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. American Journal of Public Health 94:651–656, 2004
12. Kertesz SG, Crouch K, Milby JB, et al: Housing first for homeless persons with active addiction: are we overreaching? Milbank Quarterly 87:495–534, 2009