Tobacco use and other predictors of successful length of stay in a faith-based substance abuse recovery center: Results of an initial assessment at one facility.

By: Ronald Ivie, Marion Willard Evans, Jr, Harrison Ndetan, Michael A. Perko and John Fischer

Ivie, R., D, Evans, M., W., Ndetan, H., Perko, M. A., & Fischer, J. (2010). Tobacco use and other predictors of successful length of stay in a faith-based substance abuse recovery center: Results of an initial assessment at one facility. Topics in Integrative Health Care, 1(1), p.1-11.

Abstract:

There has been debate as to whether smoking should be allowed in addiction treatment centers as part of recovery programming. A prior study at one facility assessed health promotion needs and found 80% of inpatients were smokers or tobacco users. This is four times the national average. This study assessed predictors of length of stay at a faith-based, inpatient facility in Alabama and included tobacco use as a possible predictor of success. Other potential predictors such as basic demographics, drugs of choice, intravenous drug use, parental marital status, and education levels were also tested.

Among the 290 participants completing the survey (100%), 83% were males, most were white, mean age was 33 years, and ages ranged from 18-61. Eighty percent used tobacco, and cocaine use was the most common drug for which patients were under treatment. Although approximately one third of patients completed the entire 52 week program, older patients tended to stay longer in the program and those court-ordered were more likely to complete the program as well. Marijuana use predicted longer stays compared to other drugs of choice, and tobacco use was a borderline significant predictor of length of stay ($p=0.05$), with users less likely to stay as long.

Continued tobacco use did not enhance participants' length of stay. Modifying program delivery by taking into consideration such factors as age of patients and drugs of choice, and considering a tobacco-free policy are issues that the facility may wish to address. Further studies could include assessment of mandated tobacco cessation and its effects on successful length of stay.

Keywords: tobacco use | substance abuse | addiction treatment centers | addiction treatment | health promotion | health care | substance abuse recovers

Article:

Introduction

Strategies for treatment of substance abuse and recovery have evolved over time from historically clinic-based facilities to a broader spectrum of patient-centered approaches. Faith-based substance abuse recovery facilities emerged and have been in existence for several decades. *Teen Challenge*, one of the oldest and most well known, was founded in 1958 in New York City by the Assembly of God, a Protestant church denomination.[1] A recent assessment of the health promotion needs of one faith-based treatment facility is published as a companion to this manuscript in this journal and additional information on this population and center characteristics can be found there.[2] Identified health needs assessed included smoking cessation interest levels; in this population most smokers had an interest in cessation. Among the antecedents of substance abuse and successful recovery, it is unknown as to whether use of tobacco may serve as an independent variable for relapse.

There has been some debate as to whether stopping smoking or tobacco use is advisable in addiction treatment centers, but the preponderance of evidence seems to suggest it does not negatively affect success levels of recovery programs. For example, studies show that smoking bans and concomitant tobacco cessation counseling do not adversely affect treatment outcomes.[3-7] In this case the center's medical director wanted to know if there was an effect on successful length of stay (LoS) based on several variables, including smoking or tobacco use. The center considers successful LoS to be completion of the 52 week in-patient program. Currently, only about one-third of patients successfully complete the entire program. Consequently, the aim of this study was to investigate whether use of tobacco and other drugs, as well as other patient demographic variables were associated with LoS. It was felt that if tobacco use in particular had an impact on successful LoS that this might guide decision-making on tobacco use or efforts to offer cessation counseling as a part of the overall recovery program.

Methods

Survey

A survey instrument was developed by the center's director and two health education specialists and tested for face validity by two independent Certified Health Education Specialists. The institutional review board at Parker College of Chiropractic approved the study as well as the facility's board of directors. Patients were asked to voluntarily participate in the study and assured that their involvement would remain confidential and anonymous. They were informed

that it would not have any impact on their care or their relationships with doctors or counselors at the facility.

Survey questions addressed drug use history, drug of choice (DoC), tobacco use, intravenous (IV) drug use, and how referral to the facility (through court order or voluntarily) came about. Additional questions included demographic variables such as years of education, number of children, marital status, age, and whether they had parents who were married or divorced. It was administered in the spring of 2009 to all 290 residents at the center. LoS was calculated by the medical director from the patient charts based upon program entry and dismissal dates.

Data management and analysis

Once the surveys were completed, survey data, along with LoS statistics, for each patient were recorded in an Excel spread-sheet (Microsoft®). Names were removed and replaced with a numerical identifier to maintain anonymity, and data were reviewed by the project biostatistician prior to creation of an SPSS database (version 16, Chicago, IL.). Independent sample t-tests were used to test differences in mean LoS between various categorical predictor variables (demographics, tobacco use, DoC and/or IV drug use). Linear regression (multiple, step-wise) modeling was used to assess potential continuous predictors of LoS. Odds ratios and 95% confidence intervals were computed using binary logistic regression models that predicted potential DoC used by inpatients when categorical variables were involved. All statistical significance testing was assessed at the 5% level.

Results

Demographics

All 290 surveys were returned; a 100% response rate. **Table 1** lists demographic characteristics of participants. Of those, 83% were male, the mean age was 33 years, and the ages ranged from 18-61 years. Eighty percent of the participants used tobacco and most smoked cigarettes. The mean years of education was 11.5 years (SD=1.6). Residents who entered the program voluntarily constituted 67% while 33% were ordered by the court. The most commonly used drug was cocaine (29.7% of respondents); alcohol, then opiates were next most common with 24% and 22% respectively.

Table1: Frequency distribution of demographic and other variables of residents in a faith-based substance abuse recovery center (n=290).

	Mean(standard deviation)
Length of stay (weeks)	23.9(19.2)
Age (range=18-61 years)	32.7(9.2)
Number of kids (range=0-12)	1.1(1.0)
	N(%)
Gender	
Male	241(83.1)
Female	49(16.9)
Marital status	
Not married	148(51.0)
Married	142(49.0)
Use tobacco	
Yes	233(80.3)
No	57(19.7)
Use IV drugs	
No	169(58.3)
Yes	121(41.7)
Drugs of choice	
Cocaine/crack	86(29.7)
Alcohol	70(24.1)
Opiates	65(22.4)
Marijuana	36(12.4)
Methamphetamine	22(7.6)
Other	11(3.8)
Entered facility through	
Court order	96(33.1)
Voluntary	194(66.9)

Mean length of stay and predictors of length of stay

The main predictor of successful LoS (completion of the 52 week in-patient substance abuse recovery program) were those patients who had been court-ordered versus those who voluntarily entered the facility (p=0.01). Tobacco users had a shorter LoS than non-smokers, which bordered on significance at p=0.05; tobacco use in predictive regression modeling was slightly negative in correlation with length of stay. Comparing marijuana users to other DoCs, marijuana users stayed in the program longer (p=0.03). Although males did trend toward longer stays in the program, gender and marital status did not significantly affect LoS. Age was a predictor of successful LoS (p<0.001), with older patients staying longer in the program. Parents' marital status did not have significantly affect LoS . Participants/ educational level, number of children, and IV- vs non-IV drug use did not significantly affect LoS. **Table 2** contains complete data on LoS, and **Table 3** prediction modeling results related to LoS.

Table 2: Mean length of stay (LoS) of residents of a faith-based drug abuse recovery center, distributed according to demographic and other variables.

	Mean length of stay (weeks)	P-value
Gender		
Male	23.2	0.16
Female	27.4	
Parents' marital status		
Married	22.5	0.31
Not married	24.9	
Entered facility through		
Court order	27.9	*0.01
Voluntary	21.9	
IV drug use		
Yes	22.4	0.27
No	24.9	
Tobacco use		
Yes	23.0	0.10
No	27.6	

Drug(s) of choice		
Alcohol		
Yes	24.0	0.90
No	23.9	
Marijuana		
Yes	30.6	*0.03
No	22.9	
Cocaine/crack		
Yes	21.3	0.13
No	25.0	
Methamphetamine		
Yes	22.0	0.60
No	24.1	
Opiates		
Yes	24.2	0.87
No	23.8	

*Significant at a=0.05.
P-values from independent sample t-test.

Table 3: Key predictors of continuous variable, length of stay (LoS) for residents of a faith-based drug abuse recovery center.

	Correlation Coefficient	P-value
Age	0.3	<0.001
Tobacco use	-0.1	0.05
Court order vs. voluntary	0.2	0.01
Gender	-0.1	0.08

Only one drug of choice was a predictor of increased LoS when compared to others. Marijuana

was significant at p=0.01 for >LoS. Other drugs in a model on LoS were no more or less likely to be associated with increased LoS.

Additional comparisons related to IV drug use

Among those who reported using IV drugs when compared to those who did not use IV drugs, it was more likely the DoC was a commonly injected drug. For example, opiates [OR=4.3(95%CI,2.24,7.25)] and methamphetamine [OR=2.14(95%CI, 0.88,5.18)], which are commonly injected, were more likely to be the DoC, while alcohol [OR=0.39(95%CI, 0.22,0.72)], marijuana [OR=0.67(95%CI,0.32,1.39)], and cocaine or crack cocaine [OR=0.67(95%CI,0.40,1.21)], were less likely; among which only alcohol and opiates were statistically significant. Table 4 contains the DoC that would be likely to predict IV-drug use in general, based on multiple logistic regression modeling.

Discussion

Some predictors of LoS are obvious. For patients who are court-ordered, failure to complete the program could mean jail as the next intervention. Clearly this has an effect on length of stay. Others, like tobacco use, are not as readily identified. Tobacco use is four times the national average of 20% [8] in this sample and high rates of cigarette smoking are common to addiction treatment centers.[9-10] Some studies indicate it to be routinely higher, with smoking prevalence among drug users ranging from 70-98% in treatment or methadone clinics.[11] Quit rates among patients at substance abuse treatment centers may be as much as four times lower than the national average.[12] This is of concern since tobacco use is still considered one of the most preventable causes of premature death in America.[8] However, cessation of tobacco is often encouraged or required at facilities like this one and the fact that tobacco use does not positively affect LoS and is negatively correlated with successful LoS is a possible rationale for considering either concomitant cessation education or taking the facility tobacco-free. This may be especially so since many expressed interest in cessation in a previous assessment at the center.

A national survey of 408 drug treatment facilities in the United States found that 73% had written smoking policies, 90% banned smoking indoors and half restricted smoking to certain places outdoors with only 1 of 10 having total smoking bans.[5] At least one study indicated that patients preferred cessation over reducing the amount of tobacco use overall.[13] In this case successful patients used a combination of prayer, nicotine replacement therapies, keeping busy, a day-at-a-time frame of mind, deep breathing techniques, and trigger avoidance to be successful. Potential barriers to effective cessation programs in addiction treatment centers can include staff and facilities underrating the desire for cessation by their inpatient population. In an assessment and review of barriers presented by Chisolm and others, patients rated the desire for cessation options higher than did staff; some staff members were smokers themselves, often averse to

cessation or a tobacco-free treatment facility.[14] Barriers such as these should be taken into account should a center contemplate a smoke-free policy.

Tobacco use is not only more prevalent among this in-patient population in general; it is also a significant predictor of mortality in substance abuse patients with rates of mortality 4 times higher than non-smokers.[10] Other predictors of drug use seem to follow logical patterns. If the drug can be injected, it was more likely the DoC was injected. Interestingly, those using marijuana as their drug of choice were more likely to stay longer. This may have to do with variations in the addictiveness of the various drugs, but there has been controversy as to the addictive nature of marijuana compared to other drugs and debate about its effect as a gateway to other stronger DoCs.[15] This research does not attempt to address that issue. This study may serve to support a rationale for a center to consider a ban on tobacco use. It may also provide additional insight into other potential predictors of length of stay.

Limitations

Among the limitations to the research presented here include the self-reported, cross-sectional nature of the sample. While there was a high rate of return for the sample, some respondents may have simply told investigators what they thought they wanted to hear. In addition, some stated they would be interested in cessation of tobacco, for example, but this may or may not predict who would be successful in a cessation attempt. This does not diminish the notion that those who use tobacco are less likely to stay as long in the program. However, the effect of mandated cessation on LoS for smokers compared to non-smokers is unknown. Only a more detailed epidemiological assessment could establish stronger associations with such behavioral changes.

Conclusion

Tobacco and other variables may have an effect on successful LoS at the center. Since tobacco use does not have a positive association with successful LoS the center may want to consider making the campus tobacco-free. Careful planning for the inclusion of tobacco cessation should be done prior to implementing a tobacco-free policy to accommodate those already in the program. Considering factors such as age, gender, and types of drugs used may also help the center's programs become more successful in the future and this information should be incorporated into program planning.

Should the facility want to treat tobacco use or nicotine addiction as a part of its plan to rehabilitate substance abusers, this study may support a rationale to do so. If so, development of a tobacco-free policy and selection of tobacco cessation programming should be done over a period of time, allowing for a gradual transition so that current program participants and staff can have an opportunity for successful cessation that is less abrupt.

References

1. Gruner L. Heroin, hashish, and hallelujah: the search for meaning. Rev of Relig Resear 1984;26:176-186.

2. Ivie R, Evans M, Ndetan H, Fischer J. Health promotion needs assessment at a faith-based substance abuse recovery facility in Alabama. Top Integr Health Care 2010; 1(1) [Article in press. Pages not yet assigned at time of submission].

3. Richter KP, McCool RM, Okuyemi KS, Mayo MS, Ahluwalia JS. Patients' views on smoking cessation and tobacco harm reduction during drug treatment. Nicotine and Tob Res 2002; S175-182. DOI: 10.1080/1462220021000032735.

4. Richter KP, Choi WS, McCool RM, Harris KJ, Ahluwalia JS. Smoking cessation services in U.S. methadone maintenance facilities. Psychiat Servic 2004;55:1258-1264.

5. Richter KP, Choi WS, Alford DP. Smoking policies in U.S. outpatient drug treatment facilities. Nicotine and Tob Res 2005;7:475-480.

6. Richter KP, Arnsten JH. A rationale and model for addressing tobacco dependence in substance abuse treatment. Subst Abuse Treat, Prev, Policy 2006,1:23 DOI:10.1186/1747-597X-1-23.

7. Hall SM. Nicotine interventions with comorbid populations. Am J Prev Med 2007;33:S406-S413.

8. Fiore MC, Jaén CR, Baker TB, et al. Treating Tobacco Use and Dependence: 2008 Update. Quick Reference Guide for Clinicians. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service. April 2009.

9. Moore D, Langlois M, Gerber BM, Gaddis R, Hallam JS, Arnold R. Intention to quit tobacco use among clients in substance abuse disorder treatment settings. J Stud Alcohol 2004;65(6):681-691.

10. Richter KP, Gibson CA, Ahluwalia JS, Schmelzle KH. Tobacco use and quit attempts among methadone maintenance clients. Prev Cardiol 2007;10(2 suppl 1):23-30.

11. McCool RM, Richter KP, Choi WS. Benefits of and barriers of providing smoking treatment in methadone clinics: findings from a National Study. Am J of Addiction, 2005;14:358-366.

12. Richter KP, Hall S, Cox LS, et al. Patterns of smoking and methadone dose in drug treatment programs. Exper Clin Psychopharm 2007; 15(2):144-153.

13. Richter KP, McCool RM, Okuyemi KS, Mayo MS, Ahluwalia JS. Patients' views on smoking cessation and tobacco harm reduction during treatment. Nicotine Tob Res 2002;4(suppl 2):S175-182.

14. Chisolm MS, Brigham EP, Lookatch SJ et al. Cigarette smoking knowledge, attitudes, and practices of patients and staff at a perinatal substance abuse treatment center. J Subst Abuse Treat 2010 Jul 27. [Epub ahead of print. Pages not yet assigned at time of submission].

15. Morral AR, McCaffrey DF, Paddock SM. Reassessing the marijuana gateway effect. Addiction 2002;97(12):1493-1504.