GENDER DIFFERENCES AMONG PRISONERS IN DRUG TREATMENT

Neal P. Langan, M.A.
Bernadette M. M. Pelissier, Ph.D.
Federal Bureau of Prisons

ABSTRACT

Purpose: Nearly all prison-based substance abuse treatment programs have been designed with male prisoners in mind. Some argue that female prisoners have special needs which are not met by programs originally designed for male prisoners. However, most of the empirical support for the existence of such special needs relies on two inappropriate samples: prisoners who are not in treatment, and treatment participants who are not incarcerated. Findings from these two different groups may not be generalizable to the population of prisoners in treatment. The purpose of this paper is to document special needs for females in the population of interest: prisoners in treatment. **Methods:** A comparison of gender differences among 1,326 male and 318 female federal prisoners who were enrolled in a substance abuse treatment program. **Results:** Women used drugs more frequently, used harder drugs and used for different reasons than men. Women also confronted more difficulties than men in areas linked to substance abuse such as educational background, childhood family environment, adult social environment, mental health and physical health. **Conclusion:** We find support for the argument that substance abuse treatment programs which were originally designed for men may be inappropriate for the treatment of women.

INTRODUCTION

Recent years have seen new policies designed to improve substance abuse treatment for incarcerated women (e.g., PaceCom Inc., 1999). These efforts are based on the prevalent belief that female prisoners have special needs which have not been met by programs which were originally designed for men (Chandler and Kassebaum, 1994, Lockwood, et al., 1995, Mactas, 1998, Miller, 1984, Wellisch, et al., 1991, Wellisch, et al., 1993). While women may indeed have special needs, much of the empirical research cited in support is based on samples of non-incarcerated substance users in treatment or, alternatively, on prisoners who are not in treatment. Findings from these two different groups may not be generalizable to the population of prisoners in treatment since the complex and poorly understood processes by which people are selected into prison and into treatment may differ. Indeed, prior research on treatment relevant gender differences has yielded a number of inconsistencies with regard to the seriousness of drug use (American Correctional Association, 1990, Chandler and Kassebaum, 1994, Kassebaum and Chandler, 1994, Weisner, 1993), childhood physical and sexual abuse (Lake, 1995, Snell and Morton, 1991), the prevalence of mental illness (Griffin, et al., 1989, Maden, et al., 1994, Panton, 1974), and whether work histories and educational levels are equivalent (Anglin, et al., 1987, Snell and Morton, 1991). These inconsistent findings are noted both in samples of non-incarcerated substance users in treatment programs and in samples of prison and jail inmates.

To our knowledge, there is only one other published study of gender differences among incarcerated treatment participants (Peters, et al., 1997). The Peters et al. study surveyed 435 female and 1,220 male inmates in a Florida county jail. Subjects in that study were all admitted

to a substance abuse treatment program. The six-week program was residential for male inmates, but female participants were mixed with the general population. Overall, men and women were demographically similar. Peters and his colleagues found that women were substantially more impaired than men. Women reported more recent, more frequent, and more chronic drug use than the men. Women also preferred harder drugs, indicating a greater preference for cocaine (74 percent of women compared with 49 percent of men). In contrast, the men indicated a greater preference for the softer drug marijuana (there was no difference in preference for heroin). Among those who used cocaine, women reported a preference for smoking it while men preferred intra-nasal administration.

Peters and his colleagues examined several other dimensions thought to have an impact on treatment. They found women were more impaired psychologically. Women were more likely to have taken medication for psychological problems, had experienced higher rates of lifetime depression, and had attempted suicide more often than men. The study's authors speculated that these differences may be associated with the greater frequency with which women reported being victims of childhood physical, emotional and sexual abuse. Their research also found potential relapse risks for women in the form of greater obstacles to employment. Despite the fact that the women and men in their sample had comparable educational levels, fewer women worked prior to incarceration, women earned less, and were less likely to report having a skill or a trade. The authors speculated that women may turn to illicit substances to ease the pain of poverty associated with their poor employment prospects. Alternatively, women may return to substance use in the face of involuntary idleness resulting from their higher levels of unemployment. Whatever the pathways, it is important to note that this research revealed a pattern of

disadvantages and deprivations which supercede simple drug use. Women confronted more serious problems than men in several areas associated with substance abuse. Indeed, Peters and his colleagues found that the only area where women were less impaired than men was alcohol use.

The present study replicates, and expands on the Peters study with a description of gender differences among a sample of 1,644 federal prisoners who volunteered for, and subsequently participated in a nine or 12-month residential substance abuse treatment program. The sample studied here contrasts with the Peters sample in several ways. First, this sample is more geographically diverse since it is comprised of inmates who resided in all 50 states. This diversity insures that our data do not reflect the idiosyncratic patterns of drug use found in a single locale (e.g., National Institute of Justice, 2000). Second, the subjects in this sample of federal prisoners have likely committed more serious offenses than the county jail inmates in the Peters study, indicating that this sample is comprised of more difficult offenders. Finally, a large majority of the clients in the Peters sample had been sentenced by the court to complete the comparatively brief, six week program. In contrast, the clients in this federal sample volunteered to participate in the much longer, nine or 12-month program. Taken together, results from these two studies cover a wide range of incarcerated clients and provide an empirical basis for determining whether or not women prisoners have special needs which are not met by programs originally designed for men. Identification of gender differences would suggest needed gender specific treatment designs that in turn would increase treatment effectiveness, potentially resulting in improvements in outcomes such as program retention, relapse, and recidivism.

METHODS

The data used in this paper come from a larger project to evaluate the effectiveness of the Federal Bureau of Prison's Drug and Alcohol Treatment Program (DAP). The DAP provides at least 500 hours of treatment over a nine month period. Important components of this cognitive behavioral program include relapse prevention and addressing criminal lifestyle issues. Recent research shows that inmates who participated in the DAP had lower recidivism rates and post-release drug use than a comparison group of inmates who did not participate in the program (Pelissier, et al., in press).

The DAP was initiated in 1990 at three prisons, and expanded to 30 prisons by 1992. Ten of these sites were excluded from the sample because of differences in program content or because they served INS detainees or special populations who would not be available for post-release follow-up. Post-release follow-up was a critical part of a larger research effort to determine if the DAP had an effect on recidivism (ibid). The data examined in this paper come from face-to-face interviews with 1,326 male and 318 female inmates who were voluntary participants in the DAP at 20 minimum, low and medium security federal prisons around the country. The interview could be administered at any time during the inmate's participation in treatment. Researchers took multiple trips to each these institutions to conduct interviews with all of the inmates who participated in the DAP between June, 1992 and January, 1996. However, ten percent of the men and 13 percent of the women who participated in the program during this period were never approached by researchers because the inmate was ill during the researcher's visit, had been transferred to another institution, or had been released from prison before research staff could

visit. In addition, eight percent of males and three percent of females who were approached, declined to provide informed consent to participate in the research. We speculate that the low refusal rate was due to inmates' eagerness to share their views on the DAP, both favorable and unfavorable, with researchers from the "central office." One of the authors of the present paper has conducted a statistical analysis of bias resulting from the exclusion of subjects who were missed or refused, and has concluded that the sample is indeed representative of the population of inmates enrolled in the DAP (Pelissier, et al., 1998).

The interview included questions about sociodemographic characteristics, history of drug use, previous substance abuse treatment, criminal history, employment history, and family characteristics. The interview also contained questions from the Diagnostic Interview Schedule (DIS) which provided DSM-III-R diagnoses of lifetime major depression and antisocial personality (American Psychiatric Association, 1987). The DIS interview allows lay interviewers to conduct diagnostic interviews. Several studies have evaluated its reliability and validity (Helzer, et al., 1985, Robins, et al., 1984).

This analysis is essentially descriptive, suited to our purpose of determining whether gender differences relevant to substance abuse treatment exist and, if so, assisting colleagues who are just now beginning to turn their attention to the question of how programs should be designed to address the needs of women. However, bivariate measures of association are inappropriate because the men and women in this sample differ. For example, as we discuss below, half of the females are minorities while only one-third of the males are minorities. Clearly, a multivariate method is necessary to control for factors which could otherwise confound results.

Taking full advantage of the richness of these interview data, we present the results from 17 regressions predicting a variety of characteristics which are thought to be relevant to the design of drug treatment programs. Each model contains five controls, and a variable for gender. The controls are: age, race, ethnicity, marital status, and prior record. As age, race, and prior record have long been known to be predictors of crime, and since crime is linked to substance abuse, prudence dictates the inclusion of these potentially confounding factors. Ethnicity is included as a control because it could confound results from models examining gender differences in education and unemployment. Marital status is included as a control because it could confound results from models examining gender differences in having had a spouse with a drug problem and whether the inmate plans to live with their children after release from prison.

Dependent variables were drawn from the following conceptual areas: history of drug use, education and work history, family of origin, adult social environment, and mental and physical health. The selection of these conceptual areas for examination was informed by the literature addressing the question of whether substance abuse treatment programs originally designed for men are appropriate for women. The interview is, as we have noted, quite extensive and offered a large number (20 or more) of possible measures from each of the aforementioned conceptual areas. The measures which appear in this analysis were selected from the interview as described above. Space considerations prohibit a description of precisely why each of the 17 items were selected from the pool of those available. However, we provide the following example as typical of the kind of reasoning used to select measures. In the area of drug use, we wished to examine gender differences in the use of so called hard drugs. The interview contained information on which subjects had engaged in daily use of heroin, cocaine, crack, hallucinogens, marijuana,

barbiturates, methamphetamine, inhalants and a miscellaneous category of other illicit drugs. For

the purpose of comparing men and women's use of hard drugs, we selected measures of the daily

use of heroin, cocaine and marijuana. These three drugs appeared to us to best represent, and

therefore provide the best contrast between hard and soft drugs.

All categorical variables are dummy coded. Prior to analysis, a small amount of missing data

were imputed using data augmentation, a procedure based on the Expectation Maximization

algorithm (Little and Rubin, 1990, Schafer, 1997). This procedure has been shown to be superior

to other methods of dealing with missing data (Allison, 2000).

RESULTS

Table 1 presents descriptive statistics and bivariate tests for statistical significance for the

variables included in the regressions. The top part of Table 1 presents results for 17 dependent

variables, and the bottom part presents results for the five controls included in each model.

These results show that men and women differ with respect to several of these controls. In

particular, Table 1 shows a large difference by race. While two-thirds of the men were white,

only half of the women were white. This difference alone requires the use of multivariate

techniques to assess the presence of gender differences. As such, the purpose of Table 1 is

simply to acquaint readers with the characteristics of this federal sample.

Table 2 summarizes the results of 17 regressions. The second column describes the dependent

variable in each model. All but one of these are dichotomous, necessitating the use of logistic

regression. The dependent variable in model 9 is continuous, so ordinary least squares regression was used. The next four columns show results for the gender variable (with male as the referent), after it is added to the base model containing controls for age, race, ethnicity, marital status, and prior record. These four columns show the coefficient for gender, the standard error of the gender coefficient, the Wald chi-square for the gender coefficient, and the p value for the Wald chi-square. The next column shows the change in the -2 log likelihood which results from the addition of the gender variable to the base model containing only the five control variables. The last column gives the p value for this difference, as drawn from the chi-square distribution with one degree of freedom. Fit statistics showed that all models have an acceptable fit. Full results for all models are available from the authors.

[Table 1 about here]

The results in Table 2 show that, net of the effects of the controls, women were statistically significantly different from men for 14 of the 17 items examined. The first seven models examine various dimensions of drug use. The results for these models of drug use clearly show that women were at a disadvantage compared with men. Women were statistically significantly more likely to have used drugs daily, engaged in poly-drug use (daily use of two or more drugs), and to have engaged in daily use of the hard drugs heroin and cocaine. There was no gender difference in having used the softer drug marijuana on a daily basis. Models 6 and 7 address inmates' motivations for drug use. Results show a gender difference where men were more likely to report that the main reason they used drugs was hedonistic ("enjoyed it") while women were more likely to say they had used drugs to alleviate physical or emotional pain.

[Table 2 about here]

Models 8 and 9 examine gender differences for education and employment stability, respectively.

Results show that women were less likely to have completed the twelfth grade or to have obtained a GED. However, there was no difference with respect to the number of periods of unemployment – operationalized as a period of unemployment which lasted 30 days or longer in which the respondent was actively seeking a job.

Models 10 and 11 compare the childhood family backgrounds (family of origin) for men and women. Results show that women were more likely to have grown up in homes where drug use was present, and were more likely to have experienced physical or sexual abuse in those homes. Models 12 and 13 examine gender differences in adult social environment. These results show that women were more likely to report that prior to their arrest, they had a close friend with a drug problem and women were more likely to report having had a spouse with a drug problem. Models 14 and 15 examine gender differences in mental health. Results show that women were more likely to have a DSM-III-R diagnosis of lifetime depression. However, women and men were equally likely to have a DSM-III-R diagnosis of antisocial personality. The last two models examine potential gender differences in physical health and responsibility for children. Model 16 shows that women were more likely to give an unfavorable report when asked about their physical health. Model 17 shows that women were more likely to report that they expect to be living with their children after release from prison.

The change in the -2 log likelihood column gives the difference in this statistic when gender is added to the base model containing the five controls. This statistic represents the relative degree to which the addition of the gender variable improved the fit of each model, therefore allowing one to see which gender differences were most pronounced. The largest differences between

men and women, net of the control variables, were for having had a spouse with a drug problem (Model 13) and for having been physically or sexually abused as a child (Model 11). The odds ratios were 6.6 and 5.8 respectively (not shown), indicating that women were nearly seven times more likely than men to report having been married to a drug user, and nearly six times more likely to report that they had been physically or sexually abused as children.

DISCUSSION

The prevalent belief that women prisoners in treatment have special needs has led to policies supporting the development of new substance abuse treatment programs to address these special needs. But much of the empirical evidence cited in support of this belief is inappropriate because it is based on two different groups: prisoners not in treatment and non-incarcerated treatment participants. We are aware of only one other published article which examined gender differences for a sample of prisoners who were also enrolled in a substance abuse treatment program (Peters, et al., 1997). Our study builds on the work of Peters and his colleagues in order to determine whether women prisoners in treatment do indeed have special needs, and to provide an empirical background supporting concrete suggestions for the design of drug treatment programs addressing the needs of female prisoners.

The chief advantages of this study are the ways in which this sample complements the Peters sample, thereby strengthening the generalizability of the shared results from these two studies. Where the Peters sample consisted of inmates from a single locale, this sample consists of federal prisoners from all 50 states. Geographic diversity is important because patterns of drug use have

been shown to vary substantially across location (e.g., National Institute of Justice, 2000).

Second, since the federal inmates in the present sample were serving longer sentences than the county jail inmates in the Peters sample, it is likely that the present sample of federal prisoners have been convicted of more serious offenses and have longer criminal records than the Peters sample. A third difference between the samples is that the federal sample consisted of volunteers in contrast to the Peters' sample which consisted of individuals sentenced to participate in treatment. Finally, the treatment program examined in this study is nine to 12 months in duration in contrast to the six week program studied by Peters. Taken together, results from these complimentary samples can be generalized to a wider range of incarcerated drug users. The most serious limitations of the present study include the lack of a measure of alcohol abuse and the absence of a sample from high security prisons.

Comparing the results of this study with the Peters study reveals striking similarities in the findings. Both studies find substantial gender differences which are relevant to treatment and moreover, that women are likely to present a greater challenge to treatment practitioners than men. Results from both studies indicate that women prisoners in treatment had more serious patterns of drug use, were more likely to have grown up in homes where drug use was present, were more likely to have experienced physical and sexual abuse as children, and were more likely to have mental and physical health problems. Results of both studies converge on a finding that among male and female prison inmates who participate in treatment, there are a number of differences which place women at a disadvantage in comparison with men.

Having found that gender differences are present, we turn now to the question of implications of

these differences for designing and implementing substance abuse treatment programs, noting that this discussion is speculative. This analysis showed that women had more serious patterns of drug use, were less likely to have a 12th grade education, had poorer physical health, and were more likely to report that after their release from prison they will be living with, and therefore responsible for children. Despite these differences, a clear indication of whether and how these represent different treatment needs is not known. In addition, even though there were no significant gender differences in employment problems and having a diagnosis of antisocial personality, it is still possible that these problems embody different treatment needs. The presence or absence of a problem, in and of itself, may not be sufficient to assess treatment needs. Rather, the etiology of the problem or other gender differences (not necessarily specific to substance users) may be of greater importance in determining the need for treatment approaches specific to women.

Which returns us to the question of whether or not women have special needs which are not met by programs originally designed for men. Several other findings seem to more clearly point to special needs. Of particulate note, our results lend support to the theory that men and women have different motivations for using drugs (Blume, 1990, Mondanaro, 1989). The men in this sample were more likely to report that they had used drugs for hedonistic reasons, while the women were more likely to report that they had used drugs to alleviate physical or emotional pain. The gender difference in motivation for using drugs may require different approaches in the treatment of male and female drug abusers. Broadly speaking, while treatment for men is typically structured around ways of increasing and strengthening self-control, treatment for women may need to focus upon enhancing their sense of well-being.

The higher rate of childhood sexual abuse experienced by women in our sample may also point to treatment processes crucial to recovery for women which differ from those typically provided to men. In general, men's programs focus upon the harmful effects of substance use upon themselves and their families. Peters and Schonfeld, (1993), however, claim that such a focus can do harm to women who have a history of depression coupled with low self-esteem, both of which are a result of childhood sexual abuse.

Lastly, a gender difference which may point to differing treatment needs is related to our finding that women's substance use was more likely than men's substance use to be associated with substance use among friends and intimates. This finding corroborates other research which has found that women are more likely to develop and remain in a relationship which is negative (Anglin and Hser, 1987, Anglin, et al., 1987, Flaherty, et al., 1984, Griffin, et al., 1989, Reed, 1987, Steffensmeier and Allen, 1996) and which hinders recovery from drug addiction (Zankowski, 1987). Thus, women's treatment programs may require special attention to relationship issues, particularly relationships with their partners (Laudet et al., 1999; Wallen, 1998).

The suggestions for providing treatment to female substance users which differs from the treatment typically provided to men is speculative. Future research must evaluate whether changes in treatment processes and styles which deviate from those typically provided to men, result in increased program efficacy and effectiveness. Increased effectiveness will require assessing not only post-treatment outcomes but also treatment entry and treatment retention.

Furthermore, such research must not only demonstrate improved program outcomes but also demonstrate that increased effectiveness is due, for example, to increased self-esteem, decreased levels of depression and an increased ability to establish positive interpersonal relationships with men and likely to aid in avoiding drug use.

ACKNOWLEDGMENTS

REFERENCES

Allison, P. Multiple imputation for missing data: A cautionary tale. *Sociological Methods and Research,* 28: 301-309, 2000

American Correctional Association. *The Female Offender: What Does the Future Hold?* Washington, DC: St. Mary's Press, 1990.

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Washington, DC: American Psychiatric Association, 1987.

Anglin, M. D., Hser, Y. Addicted women and crime. *Criminology*, 25: 359-397, 1987

Anglin, M. D., Hser, Y., Booth, M. W. Sex differences in addict careers. *American Journal of Drug and Alcohol Abuse*, 13: 253-280, 1987

Blume, S. B. Chemical dependency in women: Important issues. *American Journal of Drug and Alcohol Abuse,* 16: 297-307, 1990

Chandler, S. M., Kassebaum, G. Drug-alcohol dependence of women prisoners in Hawaii. *Affilia,* 9: 157-170, 1994

Flaherty, E. W., Kotranski, L., Fox, E. Frequency of heroin use and drug users' life style. *American Journal of Drug and Alcohol Abuse*, 10: 285-314, 1984

Griffin, M. L., Weiss, R. D., Mirin, S. M., Lange, U. A Comparison of male and female cocaine abusers. *Archives General Psychiatry*, 46: 122-126, 1989

Helzer, J. E., Robins, L. N., McEvoy, L. T. A Comparison of clinical and diagnostic interview schedule diagnoses. *Archives General Psychiatry,* 42: 657-666, 1985

Kassebaum, G., Chandler, S. M. Polydrug Use and self control among men and women in prisons. *Journal of Drug Education,* 24: 333-350, 1994

Lake, E. S. Offenders' experiences of violence: A comparison of male and female inmates as victims. *Deviant Behavior,* 16: 269-290, 1995.

Laudet, A., Magura, S, Furst, R.T., Kumar, N.. Male partners of substance-abusing women in treatment: An exploratory study. *American Journal of Drug and Alcohol Abuse* 25: 607-627, 1999.

Little, R. J. A., Rubin, D. B. The analysis of social science data with missing values. *Sociological Methods and Research,* 18: 292-326, 1990.

Lockwood, D., McCorkel, J., Empson, G., Surratt, H. L. Developing Appropriate Treatment for Women Within a TC Model. Paper presented at the Academy of Criminal Justice Sciences Annual Meeting, Boston 1995.

Mactas, D. J. Treatment of women with substance abuse problems. In *Drug Addiction Research and the Health of Women*, edited by C. L. Wetherington and A. B. Roman. Rockville, MD: National Institute of Drug Abuse, 1998.

Maden, A., Swinton, M., Gunn, J. A criminological and psychiatric survey of women serving a prison sentence. *British Journal of Criminology,* 34: 172-191, 1994

Miller, R. E. Nationwide profile of female inmate substance involvement. *Journal of Psychoactive Drugs,* 16: 319-326, 1984

Mondanaro, J. *Chemically Dependent Women: Assessment and Treatment.* Lexington, MA: Lexington Books, 1989.

National Institute of Justice. *1999 Annual Report on Drug Use Among Adult and Juvenile Arrestees.* Washington, D.C.: National Institute of Justice, 2000.

PaceCom Inc. Drug court in Kalamazoo has women-only program. *Criminal Justice Drug Letter*, 5, February 1999,

Panton, J. H. Personality differences between male and female prison inmates measured by the MMPI. *Criminal Justice and Behavior,* 1: 332-339, 1974

Pelissier, B. M., Gaes, G. G., Camp, S. C., Wallace, S. B., O'Neil, J. A., Saylor, W. G. TRIAD Drug Treatment Evaluation Project: Six-Month Interim Report. . Washington, D.C., 1998.

Pelissier, B. M., Wallace, S. B., O'Neil, J. A., Gaes, G. G., Camp, S. C., Rhodes, W., Saylor, W. Federal prison residential drug treatment reduces substance use and arrest after release. *American Journal of Drug and Alcohol Abuse*, 27(2), 315-337, 2001.

Peters, R. H., Schonfeld, L. Determinants of recent substance abuse among jail inmates referred for treatment. *Journal of Drug Issues,* 23: 101-117, 1993

Peters, R. H., Strozier, A. L., Murrin, M. R., Kearns, W. D. Treatment of substance-abusing jail inmates: Examination of gender differences. *Journal of Substance Abuse Treatment,* 14: 339-349, 1997

Reed, B. G. Developing women-sensitive drug dependence treatment services: Why so difficult? *Journal of Psychoactive Drugs,* 19: 151-164, 1987

Robins, L. N., Helzer, J. E., Weissman, M. M., Orvaschel, H., Gruenberg, E., Burke, J. D., Regier, D. A. Lifetime prevalence of specific psychiatric disorders in three sites. *Archives General Psychiatry*, 41: 949-958, 1984

Schafer, J. L. *Analysis of Incomplete Multivariate Data*. 2 ed. London: Chapman & Hall, 1997.

Snell, T., Morton, D. C. *Women in Prison: Survey of State Prison Inmates, 1991*. Washington, DC: Bureau of Justice Statistics, 1994.

Steffensmeier, D., Allen, E. Gender and crime: Toward a gendered theory of female offending. *Annual Review of Sociology,* 22: 459-487, 1996.

Wallen, J. Need for Services Research on Treatment for Drug Abuse in Women. In *Drug Addiction Research and the Health of Women, ed.,* edited by C.L. Wetherington and A.B. Roman. Rockville, MD: National Institute on Drug Abuse, 1998.

Weisner, C. Toward an alcohol treatment entry model: A comparison of problem drinkers in the general population and in treatment. *Alcoholism Clinical and Experimental Research,* 17: 746-752, 1993

Wellisch, J., Anglin, M. D., Prendergast, M. L. *Drug Abuse Treatment for Women in the Criminal Justice System*. UCLA Los Angeles, California: UCLA Drug Abuse Research Group, 1991.

Wellisch, J., Anglin, M. D., Prendergast, M. L. Treatment strategies for drug abusing women offenders. In *Drug Treatment and Criminal Justice*, edited by J. A. Inciardi, 5-29. Newbury Park: Sage Publications, 1993.

Zankowski, G.L. Responsive programming: Meeting the needs of chemically dependent women. *Alcoholism Treatment Quarterly,* 4: 53-66, 1987.

Table 1. Descriptive Statistics for Variables in Regressions [a]

	Proportion of Men (N=1,326)	Proportion of Women (N=318)	Chi-Square [b]	p
Seventeen Dependent Variables				
Used drugs daily	0.68	0.83	27.94	0.01
Daily use of 2 or more drugs	0.42	0.57	23.30	0.01
Daily use of heroin	0.15	0.21	7.92	0.01
Daily use of cocaine	0.39	0.44	3.24	0.11
Daily use of marijuana	0.50	0.45	2.23	0.14
Main reason for using was hedonistic	0.49	0.34	22.27	0.01
Main reason for using to alleviate pain	0.13	0.27	39.71	0.01
12th grade or GED	0.76	0.65	17.74	0.01
Mean number times unemployed	1.18	1.24	5.35	0.17
Drug use in family of origin	0.18	0.38	61.77	0.01
Physical or sexual abuse as child	0.19	0.55	164.52	0.01
Close friend with drug problem	0.57	0.68	13.19	0.01
Spouse with drug problem	0.23	0.60	163.55	0.01
Diagnosis of depression	0.15	0.33	52.54	0.01
Diagnosis of antisocial personality	0.33	0.33	0.09	0.81
Rated physical health unfavorably	0.16	0.24	11.16	0.01
Plan to live with children after release	0.40	0.60	44.26	0.01
Five Controls Included in Each Model				
Mean age in years [b]	37.22	35.45	3.32	0.01
White	0.66	0.49	29.67	0.01
Hispanic	0.12	0.10	0.86	0.35
Ever married	0.59	0.62	1.25	0.26
Prior incarceration	0.66	0.44	54.76	0.01

[a] Dummy codes are used for all variables except number of times unemployed and age. Number of times unemployed is scored as: 0=never, 1= 1-2 times, 2=3-9 times, 3=10 or more times. Age (at admission to DAP) is given in years.

[b] Chi-square tests are used to test for gender differences for all variables except age. A t-test is used to test for gender differences in age.

Table 2. Summary of Results for Seventeen Models, after Adding Gender (1 = Female) to a Baseline
Set of Variables Including Age, Race, Ethnicity, Marital Status and Prior Record (N=1,644)

			Results for Gender Variable [a]			
Model Dependent Variable	b	SE	Wald Chi-Square	p	Change in -2Log Likelihood	p
Used drugs daily	1.12	0.17	41.69	0.01	48.14	0.01
Daily use of 2 or more drugs	0.86	0.14	39.80	0.01	40.99	0.01
Daily use of heroin	0.80	0.17	21.87	0.01	20.74	0.01
Daily use of cocaine	0.36	0.13	7.86	0.02	9.54	0.01
Daily use of marijuana	-0.15	0.13	1.20	0.27	1.20	0.25
Main reason for using was hedonistic	-0.61	0.14	19.94	0.01	20.58	0.01
Main reason for using to alleviate pain	1.10	0.16	46.68	0.01	44.21	0.01
12th grade or GED	-0.55	0.14	-14.55	0.01	14.23	0.01
Number times unemployed	0.03	0.06	0.52	0.60	0.52	0.50
Drug use in family of origin	1.09	0.15	56.28	0.01	54.83	0.01
Physical or sexual abuse as child	1.76	0.14	153.25	0.01	159.43	0.01
Close friend with drug problem	0.63	0.14	20.34	0.01	21.23	0.01
Spouse with drug problem	1.89	0.15	166.92	0.01	181.36	0.01
Diagnosis of depression	1.05	0.15	49.49	0.01	47.51	0.01
Diagnosis of anti-social personality	0.10	0.14	0.60	0.48	0.60	0.50
Rated physical health unfavorably	0.65	0.16	16.32	0.01	15.61	0.01
Plans to live with kids after release	0.69	0.14	25.34	0.01	25.70	0.01

[a] Logistic regression was used to estimate all models except model predicting number of times unemployed. Since this model has a continuous dependent variable, OLS regression was used instead. As such, the Wald chi-square column for this model actually contains the t value for the coefficient and similarly, the change in the -2 log likelihood column actually contains the change in the F statistic.