

Gender Differences in Treatment Entry and Retention Among  
Prisoners With Substance Use Histories

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### Abstract

Objectives: This paper examined gender similarities and differences in the predictors of treatment entry and the combination of treatment entry and completion. Methods: The sample consisted of 2,219 male and female program participants. Maximum likelihood probit estimation was used to identify background and attitudinal characteristics predictive of treatment entry and retention. Results: There were gender similarities and differences in predictors of treatment entry and the combination of treatment entry and completion. Many of the factors which attract individuals to treatment are the same which keep individuals in treatment. Conclusions: The greatest consistency in results when making gender comparisons and when comparing predictors of treatment entry to predictors of treatment entry and completion was for attitudinal predictors, namely motivation to change.

Keywords: Treatment entry, Treatment retention, Drug treatment, Incarcerated drug users

Drug abuse has been identified as the nation's most serious health problem because it strains the health care system and has negative effects on families, the economy and public safety (1). The considerable growth in prison populations during the last decade has been fueled by individuals with substance abuse problems (2). The increasing incarceration rate now results in over 550,000 individuals returning to communities, most of these being untreated despite having drug abuse histories (3). Thus, the public health role of the criminal justice system is now of greater importance (4).

Although research shows treatment to be effective, little is known about how effectiveness may be enhanced through a better understanding of treatment entry and retention (4, 5). An understanding of treatment entry in particular is important because only a small number of substance users enter treatment (5, 6). Most of the attention within the field of substance abuse has been on treatment retention and only recently has attention been paid to help-seeking behavior (6, 7). Increasing appropriate help-seeking behavior by substance users can help reduce the misutilization of other health services, particularly by women (6, 8, 9).

Our understanding of treatment entry and retention within prison settings is very limited because there are few prison-based studies of treatment retention (10, 11) and no studies of treatment entry. The limited studies of treatment entry among community samples of various types of drug abusers (7, 12-19) find little consistency in the background characteristics predictive of treatment entry (5). However, higher levels of problem severity are frequently associated with treatment volunteerism. In contrast, studies which include dynamic predictor factors find that individuals with higher motivation are more likely to enter treatment (19).

The larger body of literature on treatment retention (10, 11) is similar to that on treatment

entry: sociodemographic factors are inconsistent predictors (11, 20-30) and are generally not large predictors of retention (6, 10). Different measures of motivation are consistently related to treatment retention (10, 25, 26, 29, 31-34).

Included in recent treatment retention literature is a growing awareness of gender differences in program needs that may differentially affect retention for women (35, 36). Women are more likely than men to enter treatment (17) and engage in drug treatment (37). Some studies show women as less likely than men to remain in drug treatment (23, 27, 28) whereas others do not find any relationship (38, 39). Women's programs which offer more specialized services or interventions (35, 36, 40-42) have better retention rates. Research, however, has not systematically addressed the question of gender differences in treatment entry and treatment retention.

## **PURPOSE OF STUDY**

The purpose of this study is to examine treatment entry as well as the combination of treatment entry and completion. Previous research has seldom examined prison populations and there is little information on gender differences. Therefore, this study examines individuals incarcerated in federal prisons and separately examines men and women. Lastly, this study assesses whether the processes by which individuals enter treatment are similar to those by which individuals enter and complete treatment.

Retention is conceptualized as program completion because federal prison programs have a defined time frame. Unlike previous research which examines predictors of retention among individuals already admitted to a program, this study examines the combination of treatment entry and retention. By not taking into account sample selection into treatment (volunteering),

this study does not assume that the causal processes between volunteering for treatment and volunteering for and completing treatment are dissimilar. This study first examines predictors of treatment entry among those eligible for treatment and continues by examining predictors of treatment entry and completion.

## **METHODS**

### **Research Participants**

The subjects were participants in an evaluation of the Federal Bureau of Prisons' (BOP) residential drug abuse treatment programs. Participants were from 4 female and 16 male unit-based programs and were admitted to treatment between 1991 and 1995. Three of the programs consisted of 1,000-hour programs which offered treatment over a 12-month period. The remaining 17 consisted of 9-month, 500-hour programs. The cognitive-behavioral treatment programs emphasized relapse prevention and criminal lifestyle issues. Admission criteria required that inmates were within 36 months of release and had a moderate to severe substance use problem. Treatment volunteers were not able to choose between the 12-month and 9-month program: the choice was limited to the program available at the specific prison.

Comparison subjects were randomly selected from among those individuals who met the criteria for admission to the programs but who did not volunteer for treatment. They were selected between 1993 and 1995 from among inmates at 40 prisons who had less than 15 months remaining on their sentence to ensure that they would not become treatment participants. The overall sample was comprised of 2,219 participants. The 1,734 men comprised 1,189 treatment participants and 545 comparison participants. The 485 women comprised 300 treatment participants and 185 comparison participants.

## **Measures**

Predictors included background and attitudinal characteristics found to be predictive of treatment entry or treatment retention in other studies, characteristics relevant to gender differences, and attitudinal measures with theoretical relevance to the drug treatment programs (43). Data were obtained from the BOP's automated data base and from inmate interviews and surveys obtained using informed consent and research procedures approved by the BOP Institutional Review Board. Inmates received their normal work assignment pay while participating in research to prevent refusals.

Demographic characteristics included race, ethnicity, years of education, and ever having been legally married. Indicators of criminal history included: severity of current offense, history of violence, age at time of most recent commitment, age when first arrested, and sentence length. In addition to employment status in the month before incarceration, a variety of family background items were included: family ties, spouse ever had a substance use problem, plans to live with children under 18 after release, history of physical abuse before the age of 18, and history of sexual abuse. Substance use history was categorized by type of drug(s) ever used on a daily basis. Other items included history of drug treatment and attempts to stop using illegal drugs for at least 30 days. Lifetime DSM-III-R diagnostic information for depression and antisocial personality was obtained using the automated Diagnostic Interview Schedule which has been found to be reliable and valid (44, 45).

The four scales of the Change Assessment Scale were used to measure internal motivation (46). Individuals must realize they have a problem (i.e., not deny their problem - precontemplation), contemplate acting to address the problem (contemplation), take specific

action (action) and after taking action, use strategies to maintain changes (maintenance). Other attitudinal measures included the Hope Scale (47), which is comprised of two subscales. The first, agency, refers to a person's sense of successful determination in relationship to reaching one's general goals. The second, pathway, refers to a person's sense of being able to plan to meet one's goals. The last attitudinal measure consisted of the planful problem-solving subscale of The Ways of Coping Questionnaire (48).

A measure of external incentive indicated whether or not an individual was eligible for up to a one-year sentence reduction for successful program completion. This incentive became available mid-course in data collection, and thus it was possible to identify whether or not the individual volunteered before or after the time when this incentive was available and how much time he/she could have benefitted: no time, less than 5 ½ months off, or more than 5 ½ months off.

Treatment completion was defined as completing either the 9- or 12-month program. Individuals did not complete treatment because they were discharged for disciplinary reasons, were unable to complete treatment due to administrative reasons (e.g., released before completion), or dropped out. The analyses differentiated the 9- and 12-month programs because it is possible that completing a 12-month 1,000-hour program is more difficult than completing a 9-month, 500-hour program.

### **Design**

Maximum likelihood probit estimation procedures were used to provide estimated probabilities for the two outcomes. Choosing a probit procedure rather than a logit procedure is one of convenience because the results derived from both are very similar (49, 50).

Methodological details are available in a report with similar analyses (43).

## **RESULTS**

Effects vector coding, where each coefficient represents the contrast of a specific category with the adjusted grand mean, was used for categorical variables. However, for pre-incarceration drug use dummy variable coding was used to contrast each category with the referent category of no daily substance use in the year before incarceration.

A positive probit coefficient implied a greater likelihood of entering or completing treatment whereas a negative coefficient implied a reduced likelihood. The Wald chi-square test (51) was used to test for differences between coefficients when a coefficient was significant for either or both genders. For simplicity, the results reported in Tables 2 and 3 include only those variables that were significant for either gender. Results for treatment entry do not report for the coefficient representing the type of program - 12-month or 9-month - because individuals were not able to choose between the two types of programs. Table 1 provides a profile of the characteristics of men and women found to be significant in one or more models. Although women had more problems in employment and depression and were more likely to have a history of physical abuse, women had higher levels of internal motivation.

### **Entering Treatment**

Table 2 contains the results for treatment entry. Neither race nor ethnicity was related to treatment entry. However, both men and women of higher education levels were less likely to enter treatment. An effect was found for offense of moderate severity but the direction of the effect for men was opposite of that for women. Women with a moderate severity offense were less likely to enter treatment but men with a moderate severity offense were more likely to enter



treatment. The Wald-chi square test for the difference between coefficients was significant ( $x^2=12.5$   $p<.05$ ).

Opposite effects for family ties were found. Women with "average/good" family ties were more likely to enter treatment but men with such family ties were less likely to enter treatment. Women who were not in the labor force before incarceration were more likely to enter treatment. In contrast, employment history was unrelated to treatment entry for men. The Wald chi-square test showed both of these coefficients to differ between men and women:  $x^2=13.05$  for family ties and  $x^2=4.14$  for not being in the labor force.

Among men, there were no significant effects for type of substance use. In contrast, among women, 2 categories of substance use were related to treatment entry. Women who used marijuana only on a daily basis before arrest were less likely to enter treatment but women who used alcohol only were more likely to enter treatment. The Wald chi-square test showed that only the coefficient for alcohol use ( $x^2=5.68$ ) indicated a significant gender difference.

Antisocial personality and depression diagnoses were related to treatment entry for women but not for men. Women who did not have either diagnosis were more likely to enter treatment but women who had a diagnosis of depression, either alone or with antisocial personality, were less likely to enter treatment. None of these coefficients differed significantly from those for men.

Both men and women planning to live with minor children after release were more likely to enter treatment. Women who had been physically abused before the age of 18 were more likely to enter treatment. This family background characteristic was not significant for men and the test of differences between coefficients for men and women was not significant.

The results for the Change Assessment Scale were similar between men and women. Men and women with high precontemplation scores (unaware of drug problem) were less likely to enter treatment; whereas, individuals with high maintenance scores (works to maintain the gains previously made and prevent relapse) were more likely to enter treatment. Among men only, those with high contemplation scores (recognizes problem and is contemplating taking action) were more likely to enter treatment. The coefficient for contemplation among women was marginally significant (at the conventional .05 level) and in the same direction (but the coefficients did not significantly differ).

The results for the measure of external incentive - the year-off incentive - differed between men and women. Among men, those who could not have received a sentence reduction and those who could have received a reduction of 5 ½ months or less were less likely to enter treatment. Although the coefficients were not significant for women, the chi-square test did not show that the coefficients for men were significantly different from those for women.

### **Treatment Entry and Completion**

Approximately 78% of the men and 64% of the women completed treatment and the program completion rate was lower for the 12-month program participants. Among men, 74% of the 12-month participants completed treatment as compared with 80% of the 9-month participants. Among women, the percentages were 60% and 67%, respectively.

The results reported in Table 3 show that race and ethnicity were not related to entering and completing treatment. Both men and women with a greater severity offense were more likely to complete treatment. In contrast, among women only, those with a moderate severity offense were less likely to complete treatment. The non-significant coefficient for men was found to

differ significantly from that of women ( $\chi^2=7.44$ ) and was in the opposite direction.

The chi-square test showed that the apparent gender differences for other indicators of criminal history were sustained only for age of first arrest. Women who were older at the age of their first arrest were more likely to complete treatment. The coefficient for men, although not significant, was in the opposite direction ( $\chi^2= 9.40$ ). Men with a recent violent history and those with longer sentence lengths were less likely to complete treatment whereas those who were older at time of current commitment were more likely to complete treatment.

Family ties were related to treatment completion among men but not women. Men with average/good family ties were less likely to complete treatment. The coefficient for women differed from that of men ( $\chi^2=9.39$ ) and, although not significant, was in the opposite direction.

There were no significant effects for either men or women for type of substance use. However, among men only, those with a history of drug treatment were less likely to complete treatment. The coefficient for women was not significant but was significantly different from that for men ( $\chi^2=19.59$ ).

Men and women without either a diagnosis of antisocial personality or depression were more likely to complete treatment. Among women only, those with a diagnosis of antisocial personality only were more likely to complete treatment whereas those with both diagnoses were less likely to complete treatment. The chi-square test showed that only the coefficient for a diagnosis of antisocial personality differed between men and women ( $\chi^2=5.12$ ).

Men who planned to live with minor children after release were more likely to complete treatment. While no such effect was apparent for women, the chi-square test showed the coefficients did not differ.

Both men and women with high precontemplation scores were less likely to complete treatment; whereas, individuals with high maintenance scores were more likely to complete treatment. Among men only, those with higher contemplation scores were more likely to complete treatment. This coefficient was not significant for women and did not significantly differ from that for men.

Among men only, external incentives were related to treatment completion: those who could not have benefitted from the sentence reduction provision were less likely to complete treatment. The coefficient was not significantly different from that for women. Among both men and women, individuals who entered a 12-month program were less likely to complete treatment.

## **DISCUSSION**

The results of this study suggest that greater attention should be paid to treatment entry, particularly in prison settings where treatment is often voluntary and where individuals who enter treatment are very likely to complete treatment. Because retention is higher than in non-prison based treatment programs and an increasing number of drug users are incarcerated, a question of greater importance is whether the intended or ideal target population is being reached? Criminal justice settings currently provide an opportunity to ameliorate public health problems, such as acquired immunodeficiency syndrome (AIDS) associated with drug use, because a large percentage of substance users are involved in the criminal justice system.

Although the federal prison drug treatment programs do not target any specific subpopulation of substance abusers, the findings point to policy modifications which could better address the issues of all those needing treatment. The importance of internal motivation for both treatment entry and retention among both genders suggests the broader application of

interventions which have been found to increase internal motivation. Motivational enhancement intervention research has shown that clinicians can elicit the motivation to change from the client (52-54) and that motivational interviewing can increase session attendance and the likelihood of treatment completion (54, 55). The use of such interventions could help induce motivation among individuals entering treatment. Individuals with initial low levels of motivation could be diverted to motivational interviewing pretreatment program tracts. Alternatively, where treatment resources are limited, efficiency may be enhanced by requiring that individuals reach a minimal threshold of motivation before admission.

Both internal and external motivations draw individuals into treatment. Previous research on external motivation has taken place primarily within the context of community-based programs where it is often defined as coerced treatment (e.g., legal pressure) (56, 57). However, little is known about external incentives which involve rewards such as sentence reductions that often occur in prison settings. The findings suggest that despite such "carrots" as sentence reduction, internal motivation is nonetheless very important because it was a predictor of treatment entry and treatment completion even in this context where external incentives were available.

The finding that women with neither a diagnosis of depression nor one of antisocial personality disorder were more likely to enter treatment occurs within a context of increasing recognition of the needs of substance abusers with co-occurring disorders (58, 59). Treatment effectiveness may be enhanced by ensuring that individuals with co-occurring psychiatric problems and drug use enter and complete treatment. The greater percentage of women with a diagnosis of depression is consistent with previous research: women use drugs to alleviate

physical or emotional pain or to cope with depression (60-63). Previous findings also show that women are more likely to view their problems in terms of health concerns and psychological problems (8, 9) and are motivated to enter treatment because of psychological and social pressures (64). Thus, if drug treatment is perceived as focusing initially on substance use rather than the psychological distress that might be motivating individuals to seek treatment, individuals may be less likely to enter treatment (4). For women, motivational programs and treatment programs will need to clearly emphasize the role of treatment in alleviating depression or other psychological distress. Simultaneously addressing women's psychological problems and substance use could prevent the misutilization of other health and mental services after release.

Examining the profile of predictors of treatment entry for women within the context of their characteristics highlights the relevance of social pressures and relationships. Women were more likely to have a history of physical abuse, to have a diagnosis of depression and report that they plan to live with minor children after release but were less likely to have positive family ties. All of these factors are related to treatment entry for women. Addressing issues of high salience may enhance women's motivation for treatment. Effectiveness of treatment can be increased through indirect positive effects on the families of these women, most of whom will be responsible for minor children when released from prison.

Both men and women were less likely to complete the 12-month program as compared with the 9-month program suggesting the importance of future research to pinpoint a treatment length and intensity level which is not too difficult to adhere to but yet which results in positive post-treatment outcomes.

This study increases the understanding of treatment retention by comparing factors that

predict treatment entry to those that predict treatment entry and retention. Since levels of drug use among state prisoners and jail inmates are even higher than in the federal systems, these findings should also be relevant for drug treatment programs in these other correctional settings. Many of the same processes which attract individuals to treatment are the same as those which keep individuals in treatment. Motivation to change leads individuals to enter treatment and also leads them to remain in treatment. Social ties and external incentives are related to treatment entry but are also important to treatment retention. If the same factors which lead an individual to seek help are those which keep an individual in treatment, the focus of research should be on treatment entry to ensure that those most in need of treatment or who can most benefit from it are those who receive treatment. However, since the availability of treatment and the treatment admission process may differ in other correctional settings, other studies may be needed to identify additional crucial issues surrounding treatment entry.

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Table 1. Descriptive Statistics for Men and Women Eligible to Enter Residential Drug Treatment

	<b>Men</b>	<b>Women</b>
White	62.6%	50.9%
Highest grade completed (mean # years)	12.1	11.5
Age at time of commitment (mean)	34.0	32.8
Age of first arrest (mean)	21.3	24.2
Severity of offense - moderate	42.2%	46.6%
Severity of offense - greatest	20.6%	9.3%
Average/good family ties	92.8%	84.3%
Employed at time of incarceration	53.3%	37.3%
Not in work force at time of incarceration	3.9%	7.5%
Sentence length (mean # months)	82.3	40.0
History of violence - less than 5 years ago	14.4%	7.2%
No daily drug/alcohol use	16.5%	13.6%
Daily use of alcohol only	10.9%	3.7%
Daily use of illicit drug - marijuana only	17.9%	14.0%
Daily use of illicit drug other than marijuana - cocaine, heroin, opiates, barbiturates, etc.	54.7%	68.7%
Diagnosis of depression only	7.9%	19.4%
Diagnosis of antisocial personality only	28.4%	16.9%
Diagnoses of both depression/ASP	8.1%	13.3%
Neither diagnosis	55.6%	50.4%
Plan to live with minor children after release	38.2%	60.0%
History of physical abuse before age 18	15.5%	31.3%
Precontemplation (mean)	1.95	1.59
Contemplation (mean)	3.37	3.15
Action (mean)	3.38	3.14
Maintenance (mean)	2.78	2.62
Year off provision but no time available	18.8%	7.7%
Type of program 12 month (Treatment participants only)	23.8%	36.7

Table 2. Predictors of Treatment Entry for Men and Women: Maximum Likelihood Probit Estimation

<b>Background Characteristics</b>	<b>Men</b>		<b>Women</b>	
	<b>Est.</b>	<b>s.e.</b>	<b>Est.</b>	<b>s.e.</b>
Race - African American	0.019	0.119	0.476	0.215 *
Race - Other	-0.071	0.208	-0.373	0.380
Severity of offense - moderate	0.203	0.081 **	-0.375	0.142 *
Severity of offense - high	-0.167	0.111	0.054	0.193
Severity of offense - greatest	0.010	0.108	0.324	0.242
Family ties - average/good	-0.273	0.089 **	0.269	0.121 *
Level of education	-0.073	0.024 **	-0.096	0.043 *
Employed at time of incarceration	0.056	0.113	0.346	0.186
Not in work force at time of incarceration	-0.132	0.201	0.622	0.312 *
Unemployed at time of incarceration	-0.029	0.155	-0.239	0.249
Unknown employ. status upon incarceration	0.221	0.305	-0.838	0.440
<b><u>Drug Use History</u></b>				
Daily use of alcohol only before arrest	-0.058	0.138	1.157	0.508 *
Daily use of marijuana (mj) only before arrest	-0.089	0.111	-0.512	0.254 *
Daily use of mj and other illicit drug(s) before arrest	0.100	0.101	-0.039	0.237
<b><u>Psychiatric Diagnoses</u></b>				
Diagnosis of depression only	0.005	0.168	-0.475	0.209 *
Diagnosis of antisocial personality (ASP) only	-0.074	0.105	0.270	0.233
Diagnoses of both ASP and depression	-0.247	0.156	-0.492	0.227 *
No diagnosis of ASP or depression	0.039	0.096	0.332	0.164 *
<b><u>Family Characteristics</u></b>				
History of physical abuse before age 18	-0.029	0.074	0.217	0.107 *
Plan to live with minor children after release	0.148	0.057 **	0.246	0.102 *
<b><u>Internal Motivation (Prochaska' Change Assessment)</u></b>				
Precontemplation	-0.495	0.091 **	-0.622	0.181 **
Contemplation	0.642	0.178 **	0.556	0.324
Action	-0.032	0.170	-0.445	0.290
Maintenance	0.310	0.106 **	0.497	0.211 *
<b><u>External Incentive - Sentence Reduction</u></b>				
Year off - no time	-0.593	0.205 **	-0.309	0.247
Year off - 1 to 5 months	-0.492	0.149 **	-0.319	0.177
Year off - 5 to 12 months	-0.026	0.165	-0.238	0.208
<b><u>Type of program</u></b>				
12 month program	0.113	0.072	-0.427	0.152 **
Constant	-0.641	0.619	0.590	1.081

\* p&lt;.05 \*\* p&lt;.01

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