

Gender Differences In The Pattern And Predictors Of The Cycle Of Using, Treatment Re-entry, and Abstinence

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Poster 2, Session IV at the College of Problems on Drug Dependence (CPDD) Annual Meeting, Scottsdale, AZ, June 21, 2006. Available at www.chestnut.org/ll/posters. Supported by National Institute on Drug Abuse Grant No: DA15523. Christy K Scott, Ph.D. Chestnut Health Systems, 221 W. Walton St., Chicago, IL 60610, 312-664-4321, csccott@chestnut.org

Introduction

For some individuals substance abuse is a chronic condition that lasts for decades and individuals cycle between periods of using, participating in treatment, being incarcerated, or being abstinent. This study explores gender differences in the pattern and predictors of transitions in this cycle over a 4-year period.

Data Source

This study is based on annual interviews from the Pathways to Recovery longitudinal study (PI: Christy K Scott) that is tracking a cohort of 1,326 adults for 9 years after intake to better understand treatment careers and factors that impact long-term recovery. The data reported here is from 5 annual interviews conducted between 2 and 6 years post enrollment. This period provides a mix of people at all points in the cycle. Interviews were conducted using a modified version of Addiction Severity Index, and participants were recruited between 1996 and 1998 from sequential admissions to a central intake unit and 12 treatment facilities in Chicago. Ninety-four percent or more completed the annual interview each wave. Excluded from these analyses were individuals who were deceased at 6 years (n = 94, 7.1%), without any consecutive interviews (n=19, 1.4%), and individuals with no follow-up data (n=11, 0.8%). There were 4 possible annual transitions for each of the remaining 1,202 participants (n=4,808); missing interviews reduced the number of observed transitions to 4,630 (96%). Among the 1,202 participants, 89% were African American, 60% were female, and the average age at enrollment was 34 (S.D.=7.7). Substances used weekly included cocaine (75%), alcohol (62%), heroin (85%), or marijuana (38%).

Most participants had multiple co-occurring conditions including psychiatric disorders (41%), homelessness (32%), unemployment (86%), and legal system involvement (34%).

Recovery Cycle Classification

At the time of each annual interview participants were classified as either:

- incarcerated** (15 out of the last 30 days in jail or prison),
- in treatment** (if they were receiving substance abuse treatment at the time of the interview),
- using** (any illegal substance use, alcohol intoxication, or substance related problems during the past 30 days), or
- abstinence** (no illegal drug use, alcohol intoxication, or substance related problems while living in the community).

Transitions within the Cycle

The status for persons who started and ended the year at the same point in the cycle was labeled as "stable." Transition pathways in the cycle were designated based on the starting and ending points over a one-year period. For example, a person who started the year "using" and at the end of the period was "abstinent" is said to have moved along the "using-to-abstinence pathway." Most participants (79%) transitioned one or more times during this 4-year period (31% of the participants transitioned two times, 19% three times, and 7% four times), with the annual rate of change being smaller. Table 1 shows that participants who were abstinent or using were highly stable (60% or more) over a one-year period. Males and females generally demonstrated similar patterns of stability and transition. The exception was that males were more likely than females to be incarcerated (16 vs. 6%; $\chi^2(1)=32.3$, $p<0.001$ averaged over the years of observation) and fewer men transitioned from incarceration-to-in treatment (5% vs. 17%; $\chi^2(1)=6.45$, $p=0.011$ averaged over the years of observation).

Table 1. Probability of stability and transition pathways

Beginning of the Year	Gender ^a	End of the Year (row percent) ^b			
		Using	Incarcerated	In treatment	Abstinence
Using	Male (39%)	60%	10%	8%	22%
	Female (39%)	61%	5%	11%	24%
	Total (39%)	61%	7%	10%	23%
Incarcerated	Male (16%)	25%	49%	5%	21%
	Female (6%)	30%	35%	17%	18%
	Total (10%)	27%	44%	9%	20%
In treatment	Male (8%)	27%	5%	35%	32%
	Female (12%)	27%	4%	36%	33%
	Total (11%)	27%	4%	36%	33%
Abstinence	Male (37%)	24%	10%	6%	60%
	Female (43%)	24%	3%	8%	66%
	Total (41%)	24%	5%	7%	64%

^a Percent of pathways with the starting point.

^b Percent of Row ending in each point (**bold** is stable).

Predictors of Transitioning

A number of variables were examined to discover which variables differentiated between participants who started the year at a particular point in the cycle and transitioned to one of the three other points. Given the space limitations, this poster only focuses on the two most common transitional pathways: *using-to-abstinence* and *abstinence-to-using* are compared to their corresponding stable pathway. The odds ratios represent the likelihood of participants transitioning versus remaining stable (i.e., *using-to-using* and *abstinence-to-abstinence* respectively). Variables with odds ratios greater than one are those where higher scores correspond to an increased likelihood of transitioning; while variables with odds ratios less than one correspond with an increased likelihood of not transitioning. Interaction terms between gender and each factor were also examined.

Significant variables for the *using-to-abstinence* and *abstinence-to-using* pathways are presented in Table 2. Variables related to these transitions differed depending on the direction of the path. For example, participants with most of their friends being clean and sober were more likely to transition into abstinence from using but once abstinent they were less likely to transition back into using. For some variables the participant's gender moderates the variable's effect on the likelihood of transitioning. For the *using-to-abstinence* pathway, more weeks of treatment during the period corresponded with an increased likelihood of transitioning among males but had no effect among females. Fewer days of substance use in the 30 days prior to the annual interview corresponded with an increased likelihood of transitioning to abstinence, but for each session attended the effect was greater for females than for males. Gender also plays a role in the *abstinence-to-using* pathway. Overall, once abstinent, females are less likely to relapse than males. Gender also mediates the effect of prior treatment on transitioning. Males with more prior treatment episodes were less likely to relapse, while females with more prior treatment episodes were more likely to relapse.

Limitations

The study examined pathways based on annual observations, thus it is likely that during the period some additional transitions occurred that were not documented. This study identified stable predictors of transitioning across a 4-year period; however, this is an observational study and, as such, cannot establish causation. Secondary analyses were conducted to rule out over a dozen other variables but the potential for missed or confound variables still exists. Nevertheless, these preliminary findings provide a starting point for further research.

Table 2

Odds ratios for the *using-to-abstinence* and *abstinence-to-using* pathways

Predictor	Mean ^a	SD ^a	Using-to-abstinence	Abstinence-to-using
Friends, clean and sober	—	—	1.22 ***	0.82 **
General Mental Distress Scale	4.14	5.01	0.80 **	—
Arrests, lifetime	6.64	12.60	1.18 *	—
ASI Legal Composite Score	0.09	0.18	—	1.49 **
Female	—	—	—	0.66 *
Weeks of treatment	3.24	9.27	1.42 *	1.34 *
Male X Weeks of treatment	—	—	1.98 †	—
Female X Weeks of treatment	—	—	1.01 †	—
Days of substance use	11.64	12.00	0.56 ***	—
Male X Days of substance use	—	—	0.43 ††	—
Female X Days of substance use	—	—	0.73 ††	—
Self-help sessions attended	15.29	47.35	1.70 ***	0.58 ***
Male X Self-help sessions attended	—	—	1.50 †	—
Female X Self-help sessions attended	—	—	1.92 †	—
Number of prior treatments	1.57	2.13	—	—
Male X Number of prior treatments	—	—	—	0.83 †
Female X Number of prior treatments	—	—	—	1.23 †

^a The mean and standard deviation (SD) of continuous variables computed across observations. The odds ratios are based on a one SD increase in the predictor. For categorical variables the odds ratio represents the difference between adjacent categories.

* p<0.05; ** p<0.01; *** p<0.001

Interaction term (difference between males and females): † p<0.05; †† p<0.01

Implications

These findings suggest that factors that help sustain recovery may differ for men and women and are dependent on where the person is in the recovery cycle. This indicates the need for subgroup analysis and gender as a mediating variable. An understanding of the factors influencing transitions in the recovery cycle will help focus assessment and monitor the assets and liabilities a person has for recovery, and help individualize treatment, aftercare, and monitoring plans to address these factors. These results add to the existing body of literature that clearly demonstrates the need to address not only substance use disorders but also the multiple co-occurring conditions that accompany them to maximize the success of treatment. In summary, improved documentation and understanding of the chronic and cyclical nature (relapse, treatment re-entry, and recovery) of addiction is essential to improving existing treatments, developing new treatment approaches, finding ways to facilitate movement down positive pathways, and deter movement down others, as well as restructuring the financing of treatment.