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By Kenneth Silverman, August F. Holtyn, and Reed Morrison

# The Therapeutic Utility of Employment in Treating Drug Addiction: Science to Application

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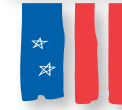
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## The Therapeutic Utility of Employment in Treating Drug Addiction: Science to Application

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Addressing chronic drug addiction among unemployed and economically disadvantaged adults is a daunting challenge. Employment is critical in addressing the poverty and economic disadvantage; however, controlled research suggests that employment could play a valuable role in treating drug addiction as well. Contrary to common conceptions, employment alone may not have robust effects on drug use. Employment may have greatest effects on drug use when it is used by employers as an incentive to promote drug abstinence. This article summarizes what we know from controlled research on the utilization of employment in the treatment of drug addiction and suggests potential models of applying these findings in society.

### Employment as an Incentive to Motivate Drug Abstinence

Incentives for drug abstinence can be effective in both initiating and maintaining abstinence from most commonly abused drugs (Dutra et al., 2008; Lussier, Heil, Mongeon, Badger, & Higgins, 2006). These interventions are rooted in research on operant conditioning and arrange reinforcement for drug abstinence (Bigelow & Silverman, 1999). These abstinence reinforcement interventions, commonly referred to as incentive interventions, offer patients a tangible benefit for providing objective evidence of drug abstinence. Money can be particularly useful because it is attractive to most people; its magnitude and frequency can be varied over a wide range; and because most people will not lose interest in this benefit, even after receiving a fair amount of it. High magnitude incentives are more effective in promoting drug abstinence and the effects of incentives are more durable if they are maintained over time.

The need to use high magnitude incentives and to maintain them over time raises an obvious practical problem: How can we finance high magnitude and long duration incentives for drug abstinence? To address this issue, we have been investigating whether employment can be used as a vehicle for applying and maintaining high magnitude incentives for drug abstinence and other therapeutic behavior change. To investigate this possibility, we developed a model employment intervention that we have referred to as the Therapeutic Workplace. Adults with long histories of drug addiction are hired and paid to work in the Therapeutic Workplace, but are required to provide drug-free urine samples to gain access to the workplace and/or to maintain their maximum rate of pay. A number of randomized controlled clinical trials have shown that the Therapeutic Workplace can promote abstinence from cocaine,



opiates and alcohol and promote adherence to the opioid antagonist naltrexone in diverse populations of poor and chronically unemployed adults (Silverman, 2004; Silverman, DeFulio, & Sigurdsson, 2012). The intervention has been recognized by the White House Office of National Drug Control Policy (ONDCP) as an important innovation in the treatment of drug addiction (ONDCP, 2014).

### Employment-Based Abstinence in Promoting Drug Abstinence

Our research has shown that employment alone is not sufficient to promote sustained abstinence in our participants; our participants achieve sustained abstinence primarily when required to provide drug-free urine samples to maintain access to the workplace and to maintain maximum pay. In these studies, persistent drug users were hired to work in our model workplace and then randomly assigned to a condition in which continued drug use had no explicit consequences or to a condition in which drug-positive urine samples or missed samples resulted in a temporary workplace suspension and decreased pay. This research suggests that persistent drug users

will likely continue to use drugs when given a job, but they may stay abstinent if required to do so as a condition of employment or if they must remain abstinent to maximize their wages.

#### Long-Term Maintenance of the Abstinence Requirement to Prevent Relapse

Like other substance abuse treatments, abstinence reinforcement or incentive interventions do not reliably produce irreversible effects. Employment-based abstinence reinforcement can be used to maintain abstinence. However, when the employment-based abstinence reinforcement contingency is discontinued, many individuals relapse. For some people it may be necessary to maintain employment-based abstinence reinforcement for extended periods of time, and possibly indefinitely.

#### Repeated Exposure to the Contingencies to Initiate Abstinence

Most people who are exposed to abstinence reinforcement interventions do not stop using drugs abruptly. Many people ultimately achieve sustained periods of abstinence, but use drugs periodically or even consistently when initially exposed to employment-based abstinence reinforcement contingencies. We do not know whether harsher contingencies that do not tolerate any drug use would produce higher or lower rates of ultimate success than contingencies that allow repeated exposure to the contingencies.

#### Sequential Application of Abstinence Contingencies Across Drugs

Requiring that individuals achieve abstinence from all drugs of abuse from the outset of a treatment episode may be appealing, but it may not be the most effective approach. Our research suggests that the sequential application of abstinence reinforcement contingencies can be effective in promoting abstinence from opiates

and cocaine. We suspect that applying abstinence reinforcement contingencies for multiple drugs sequentially may be beneficial.

#### Introduction to the Workplace Through an Induction Period

To engage participants in the workplace, we have frequently allowed participants to attend the Therapeutic Workplace at the start of treatment without requiring that they provide drug-free urine samples to work or to maintain maximum pay. We suspect that this induction period could increase the attractiveness of the workplace to participants and increase their persistence and success once the abstinence contingencies begin.

#### Decreasing Pay May Be Sufficient

In most of our studies, we have required that participants provide drug-free urine samples to gain access to the workplace. This contingency is effective, but it may also reduce attendance in the workplace. Our recent research also shows that arranging a temporary decrease in hourly pay when a participant provides a drug-positive urine sample can be effective, and does not reduce attendance.

#### Phases of Treatment

Most Therapeutic Workplace participants have been unskilled individuals. For these individuals, we have offered abstinence-contingent access to stipend-supported education and job skills training prior to employment. Participants who become abstinent and skilled during this initial phase (Phase 1) progress to the second phase (Phase 2) and become employed in a Therapeutic Workplace business. To evaluate this second phase of the Therapeutic Workplace intervention, we opened a data entry business called Hopkins Data Services, hired Phase 1 graduates to serve as data entry operators in that business, and sold data entry services to paying customers.

#### Models to Apply Therapeutic Workplace Practices in Society

We propose three models to maintain employment-based reinforcement in the treatment of drug addiction: A Social Business model, a Cooperative Employer model, and a Wage Supplement model. Under all models, individuals enroll in the abstinence initiation and training phase of Therapeutic Workplace (Phase 1) to initiate abstinence and establish skills. The models differ in how employment-based reinforcement would be maintained over time.

##### The Social Business Model

Under the Social Business model, Phase 1 graduates are hired as employees in a social business. A "social business is outside the profit-seeking world. Its goal is to solve a social problem by using business methods, including the creation and sale of products and services (Weber & Yunus, 2010, p. 1)." The Therapeutic Workplace social business maintained employment and employment-based abstinence reinforcement to promote and maintain both employment and drug abstinence. We established a Therapeutic Workplace social business, Hopkins Data Services, which provided data entry services to customers.

##### The Cooperative Employer Model

Under the Cooperative Employer model, a community employer hires graduates of Phase 1. The Cooperative Employer requires that employees undergo random drug testing and remain abstinent to maintain employment. This model may provide added employment slots and could hold great promise if socially-conscious employers adopt this approach. Although not experimentally evaluated, a variation of this model has been used for people in safety-sensitive jobs (e.g., trucking) to ensure that they stay drug-free while at work. A similar system is used for physicians.

##### The Wage Supplement Model

Under the Wage Supplement Model, graduates of Phase 1 are offered abstinence-contingent wage supplements if they maintain competitive employment in a community job. Governments in Minnesota, Connecticut, Milwaukee, New York, and Canada have used wage supplements to increase employment in welfare recipients. This model harnesses the power of wage supplements to promote employment, while simultaneously using the wage supplements to reinforce drug abstinence.

#### Federal Workplace Drug Testing Infrastructure and Practices

To facilitate ultimate adoption of employment-based abstinence reinforcement through our proposed application models, a system of workplace drug testing overseen by the U.S. Department of Transportation (DOT) could be used. The DOT regulated procedures for managing drug and alcohol problems among safety-sensitive employees have been characterized as belonging to the contingency management model (Morrison, 2008). Akin to the operations of the Therapeutic Workplace, the DOT regimen acts as a therapeutically sequenced reinforcement schedule that permits the abstinent employee to regain an old job or acquire a new one contingent on maintaining drug abstinence. Specialized private companies manage workplace drug testing and related services for employers (e.g., American Substance Abuse Professionals, <https://go2asap.com/>). They provide assistance to regulated employers in complying to the DOT system and relieve them of the responsibility of becoming experts in the management of substance use disorders among their safety-sensitive employees.

#### Discussion

Research on a laboratory model of a Therapeutic Workplace has allowed for systematic and controlled research on the utilization of employment in the treatment of drug addiction and has suggested key ways in which employment can be used to promote and maintain drug abstinence and adherence to addiction medications. This intervention has been shown effective in promoting and maintaining abstinence from heroin, cocaine and alcohol and promoting adherence to the opioid antagonist naltrexone. We have proposed three models to implement and maintain employment-based reinforcement in the treatment of drug addiction: A Social Business model, a Cooperative Employer model, and a Wage Supplement model. The three models rely on economically sound businesses or workplaces to provide employment opportunities for Therapeutic Workplace participants and to maintain employment-based therapeutic reinforcement contingencies over time. While this will not be simple, there are limited alternative approaches that have proven effective in maintaining long-term drug abstinence. Given the severity and persistence of the problem of drug addiction and the lack of robust treatments that can produce lasting effects, continued development and evaluation of the Therapeutic Workplace approach to the treatment of drug addiction is clearly warranted. The success of this approach will depend on creative and bold public and private partnerships.



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