Contingency Management for Patients With Serious Mental Illness and Stimulant Dependence

When my daughter was taking violin lessons at age 6, she had a recurrent problem: she couldn't keep her bow straight. For weeks, her teacher tried numerous methods of correcting this bad habit and couldn't make a dent. Then the teacher took a shiny new dime out of her pocket and placed it on a table. She told my daughter, "If you can straighten out your bow arm by next week's lesson, you can have this dime." In the ensuing week, my daughter stood in front of a mirror for the first time, carefully monitoring the direction of her bowing. One week later, her bow arm was straight, and she had earned her reward.

People respond to incentives. They don't need to be large, either; a mere dime (19 cents in today's dollars) motivated my daughter to break a seemingly intractable bad habit. For nearly 20 years, contingency management, which involves reinforcing desirable behaviors with tangible rewards, such as vouchers, gift cards, or cash, has been found to be a highly effective (1) and cost-effective (2) treatment for patients with substance use disorders (1). In this issue of the *Journal,* McDonell et al. (3) report that contingency management, when added to treatment as usual, can be highly beneficial for patients with serious mental illness and stimulant dependence who are being treated in a community mental health setting. Half of the patients in this study (those in the "contingent condition") were randomly assigned to receive contingency management; for these patients, a stimulant-negative urine test would earn them an opportunity to draw from a "fishbowl" containing slips of paper worth varying amounts (most were worth $1, a few were worth $20, and one piece of paper contained a "jumbo" prize of $80; half of the slips of paper contained no monetary value and just read "nice job"). The comparison group received similar opportunities to draw for these prizes, but the opportunities were not contingent on the results of their urine tests (i.e., they were in the "noncontingent condition"). Unsurprisingly, and consistent with many other studies, the patients for whom the reinforcement was linked to their drug abstinence were more than twice as likely to produce a stimulant-negative urine test during treatment and 1.4 times as likely to do so during the follow-up assessment. If that had been the only finding, this would have been a nice study but not particularly noteworthy. However, it was the differences between the two study cohorts in psychiatric functioning and likelihood of hospitalization that stand out in this study. During the 6 months following randomization (3 months of treatment and 3 months of follow-up), nine of the participants in the noncontingent condition were hospitalized psychiatrically, for a total of 152 days, whereas only two participants in the contingent condition were hospitalized, for a total of 14 days. Thus, there was more than a tenfold difference between the two groups in their number of hospital days. Moreover, participants assigned to the contingent condition were 3 times less likely to inject drugs during the treatment period, although these differences were not maintained during the posttreatment follow-up assessment.

What are the lessons to be learned here?

First and foremost, this study demonstrates the dramatic improvement that can occur in patients with serious mental illness when their substance use is successfully addressed. It wasn't so many years ago when the fields of addiction treatment and psychiatry viewed each other with mutual lack of interest if not frank antipathy. This study shows, however, that an integrated addiction psychiatry treatment approach can reduce not only substance use but also psychiatric hospitalization and HIV risk behavior.

A second major lesson from this study relates to the power of incentives. Although the evidence base for contingency management is certainly ample, its uptake by the clinical community has thus far been modest. To some extent, the objections to contingency management have been philosophical ("Why are we paying someone to not break the law and use drugs? Who is going to pay me to do that?"). An even more powerful objection may be financial ("Who will give our treatment program the money to pay our patients when they produce negative urine screens?") (4). This study demonstrates, however, that providing funding for these incentives has the capacity to produce subsequent financial benefits (e.g., by reducing the need for psychiatric hospitalization in this case). The fact that the Veterans Administration has recently approved the use of contingency management in treating drug-dependent veterans (5) demonstrates that when a payer is responsible for all of the patient's medical care (i.e., without a mental health or substance use disorder carve-out), contingency management may be implemented more widely.

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As with any study, we need to be cautious about generalizing too much from these results. Patients in the noncontingent comparison condition in this trial were reinforced not as a result of their own behavior but as a result of the behavior of patients in the contingent condition to whom they were "yoked." Thus, a patient in the noncontingent condition would receive an opportunity to draw a prize from the fishbowl if the person to whom he or she was yoked produced a negative urine sample. This design produces a system of unpredictable variable reinforcement for patients in the noncontingent condition, which reinforces continued clinic attendance ("Who knows? If I show up, I might win a prize") but not abstinence. Since variable reinforcement (think slot machines, the classic example of this) is most likely to maintain an already learned behavior, it is not surprising that patients in the noncontingent condition were more likely to continue attending treatment and thus less likely to drop out. As a result, there were more missing data for the patients in the contingent condition, which necessitated imputation techniques to deal with missing data. Another limitation of the study was the fact that the patients were all recruited from a single treatment agency, and we don't know if the robust effects on psychiatric hospitalization are generalizable. Despite these limitations, however, the results of this intervention on not only drug use but also rates of psychiatric hospitalization were striking enough that we should pay attention and examine the potential utility of this treatment methodology in a wider variety of patients and treatment settings.

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