Strategies That Overcome Barriers to Token Economies in Community Programs for Severe Mentally Ill Adults

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ABSTRACT: The token economy has been found to be an effective strategy for treatment of severe mentally ill inpatients. However, several barriers have prevented facile transfer of token economy strategies from inpatient settings to community programs: these barriers include outpatient access to competing reinforcers, supplemental income that help outpatients purchase these reinforcers, weakening of the efficacy of response costs, limited hours of the day in which day treatment contingencies apply, and interference of contingency contracts by family or friends. These barriers can be obviated by avoiding response cost contingencies, providing reinforcers cheaply, and including other systems in the development and implementation of token contingencies.

When combined with skills training and shaping procedures, the token economy has been found to be a powerful tool for treatment of severe, adult psychiatric disorders within inpatient settings (Atthowe & Krasner, 1968; Ayllon & Azrin, 1968; Kazdin & Bootzin, 1972; Kazdin, 1982; Paul & Lentz, 1977). Research has shown that token contingencies increase the frequency of self-care skills including personal hygiene, self-feeding, and clothes maintenance (Atthowe &
Krasner, 1968; Ayllon & Azrin, 1968; Ellsworth, 1969; Glynn & Mueser, 1986; Paul & Lentz, 1977) and the components of interpersonal functioning including decreased apathy, improved social interactions, and diminished aggression (Glynn & Mueser, 1986; Paul & Lentz, 1977). Evidence regarding maintenance of effects from token economies are mixed, however. Some studies have shown that upon removal of the token economy, targeted skills quickly extinguished, returning behavioral rates to pretreatment levels (Kazdin & Bootzin, 1972; Walker & Buckley, 1968). However, another study found that 80% of patients who participated in a comprehensive token economy maintained or improved the status of targeted behaviors several months after treatment (Banzette, Liberman, Moore, & Marshall, 1984).

While token economies have been extensively utilized and studied within the inpatient setting, publications describing their utility and efficacy within community settings are rare. A computerized search of the professional literature since 1980 found only three investigations of the effects of token economies on severe mentally ill populations in community treatment settings (Denkowski & Denkowski, 1985a; diGiorgio, 1985; Sanford, Elzinga, & Grainger, 1987). The lack of studies in this area may be attributed to several barriers that diminish the efficacy of token economies in community settings. These barriers can be obviated by incorporation of additional behavioral strategies into the token economy protocol. Many of the suggestions included in this paper reflect the author's experiences supervising First Step, a community-based psychoeducational demonstration project funded by the Illinois Department of Mental Health and Developmental Disabilities (Corrigan, Davies-Farmer, Lightstone, & Stolley, 1990; Corrigan, Davies-Farmer, & Lomie, 1988; Schade, Corrigan, & Liberman, in press).

THE INPATIENT TOKEN ECONOMY

Implementation of a token economy within hospital settings requires three steps. First, interpersonal and self-care deficits that can be increased through token economy procedures are identified. Principles of behavioral assessment are used to accomplish this task; namely, describe each target in terms of observables, rate the severity of the behavior, and track the frequency with which the behavior occurs (Barlow & Hersen, 1984; Cone & Hawkins, 1977). Most inpatient settings identify a range of self-care and basic social skills for which all
patients are reinforced. In addition to unit-wide behaviors, idiosyncratic deficits are targeted for each patient. For example, a patient who rarely uses an ashtray may receive tokens each time he extinguishes his butt appropriately.

The second step involves definition of contingencies for each targeted skill. Contingencies describe if-then relationships between response and consequence that differ among skills and across patients in a milieu. For example, Harry receives four tokens for arriving to meals on time and one token for combing his hair. Staff decided less tokens were necessary for hair care because the skill was performed at a fair rate during baseline. George, however, receives ten tokens for hair care: he receives more tokens for this behavior than Harry because prior assessment found George rarely accomplishes this task. Token principles are also used to decrease the rate of maladaptive or socially inappropriate behaviors by specifying token fines for performing these responses. For example, every time Harry shouts, he must pay three tokens. As the rates of targeted behaviors change in the appropriate direction, payoffs and fines are slowly faded such that the patient does not receive as many tokens in a reinforcement contingency or does not lose as many tokens for a response cost.

The third step to setting up a token economy involves posting rules for token exchange including the time each day primary reinforcing can be purchased and the cost of consumable items. In this way, patients and staff have constant reminder of and ready access to the rules that govern the token economy. Frequently, exchange rules include a ceiling on the number of consumables that may be purchased for health reasons. For example, patients can purchase no more than six cigarettes or eight pieces of candy each day.

Several benefits result from incorporating a token economy into a treatment program (Ayllon & Azrin, 1968; Kazdin & Bootzin, 1972). More immediate reinforcement of spontaneous skills results from use of tokens by bridging the delay between the targeted response and back-up reinforcers; reinforcing patients' discrete behaviors with cookies or candy can be slow and clumsy. Dissemination of reinforcers is more flexible when behaviors can be rewarded at any time. Similarly, effects from token economies show greater durability than use of primary reinforcers alone. New behaviors may be maintained over extended periods in a token economy when the back-up behavior is unavailable. Finally, many behavioral programs soon lose their efficacy when needs become satiated. The token economy is not affected by satiety, maintaining reinforcing properties regardless of deprivation states. Tokens
may even assume greater incentive value than any single primary reward (Forster & DeMyer, 1982).

**Barriers to the Community-Based Token Economy**

Several barriers prevent transfer of strategies comprising the inpatient token economy to community settings; differences between the two settings are summarized in Table 1. Frequently these barriers significantly impede the implementation of successful token economies such that, if alternative means are not used to circumvent these limitations, positive effects associated with the token economy are greatly diminished. These barriers result from philosophical differences that distinguish the *raison d’être* between institutional and community settings; namely, because inpatients present a risk of harm to themselves or others, hospital programs are more restrictive than community treatment settings. As a result, inpatient settings have greater control over patient responses and the contingencies that modify these responses.

<table>
<thead>
<tr>
<th><strong>Table 1</strong></th>
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<td>Differences between Inpatient and Outpatient Settings in the Implementation of Token Economy Principles</td>
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<tr>
<td><strong>Inpatient Programs</strong></td>
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<tr>
<td>1 Strong control over milieu</td>
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<td>2 Highly restrictive treatment policy</td>
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<td>3 Limited access to rewards</td>
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<td>4 No supplemental income</td>
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<td>5 Cannot avoid aversive response costs</td>
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<td>6 24-hour contingency control</td>
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<td>7 Infinite range of behavioral targets</td>
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<td>8 Little collateral interference</td>
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<tr>
<td>9 Large staff-patient ratio</td>
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<td>10 Coordinated treatment plan</td>
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For example, inpatient programs have locked doors and out-of-bounds areas that restrict inappropriate behaviors while patients in most community programs can come and go as they like.

The potency of inpatient token economies rests with the desirability of backup reinforcers, i.e., consequences for which individuals will significantly increase the rate of targeted behaviors (Wallace, Liberman, & Corrigan, 1989). Patients in treatment milieu that offer highly desirable consequences tend to be more invested in the program; contingencies in these programs have greater control over patients' behavior as well. Desirability of individual commodities is a function of the patient's learning history and the availability of reinforcers (Kagel & Winkler, 1972; Winkler, 1971). As consequences that were previously received at a high rate become less accessible, they become more desirable (Premack, 1962). For example, severe mentally ill individuals with a history of smoking will perform targeted operant behaviors more frequently when these behaviors are rewarded with tokens that can buy cigarettes. While state and federal legislation have attempted to regulate the use of various commodities as reinforcers in the hospital (Wexler, 1974), inpatient settings continue to use privacy, sleeping arrangements, and the quality of daily meals as purchasable commodities (Paul & Lentz, 1977). Hence, restricted access to backup reinforcers increased the potency of token economies.

Outpatients have relatively unlimited access to food and sleeping space. Patients treated in the community who cannot purchase cigarettes at an outpatient program may go to the corner store and purchase them at the end of the day. In addition, most chronic patients in the community receive supplemental income from Social Security, the Department of Veteran's Affairs, or other governmental funds. Hence, outpatients who cannot satiate specific needs in the token economy because they received insufficient tokens can use their supplemental income to purchase the reinforcers at a nearby market. Ability to acquire desired reinforcers outside the community-based program significantly decreases the potency of the token economy.

Inpatient programs decrease inappropriate or antisocial behaviors with response costs. Unfortunately, individuals whose behaviors have been fined repeatedly experience the response cost as aversive and may avoid both the treatment staff and the milieu that are applying the negative consequence. Locked doors and court mandated hospitalization prevent inpatients from leaving the treatment milieu; in the meantime, clinicians can devise alternative contingencies to help patients acquire skills that will supplant the inappropriate behaviors and de
crease the need for future response costs. However, most outpatients are not legally bound to community settings and most day treatment centers do not have locked doors (Lamb & Mills, 1986; Miller, 1985). Hence, patients who receive multiple response costs in the community may stop coming to that program to escape the negative consequences. As a result, response costs cannot be used with the same frequency in the community.

The potency of inpatient programs is also greater because staff can track and reinforce target behaviors 24 hours a day, every day of the week. As a result, hospital-based behavior therapists can target responses that occur in various behavior settings (e.g., day room, bedroom, bathroom) or are specific to certain times of the day (e.g., at wake up, bed time, or the middle of the night). Outpatient day treatment centers interact with patients at most, only eight hours a day during the work week. Thus, two thirds of each day and weekends do not fall under the contingencies of the token economy. Moreover, many social and self care skills are performed at times of the day that fall outside the purview of day treatment programs. Hence, the range of behaviors that can be targeted by day treatment token economies is greatly restricted.

Well-planned token economies will be ineffective if other staff, family members, or patients are not correctly implementing or otherwise undermining the contingencies (Tharp & Wetzel, 1968). For example, an extinction schedule that diminishes the rate of tantruming behavior will be ineffective if an insight-oriented staff member decides to discuss the meaning of the aggressive act with the patient. Similarly, staff members that do not agree about specific intervention plans are likely to develop competing contingencies, thereby diminishing the efficacy of the overall token economy.

Just as the bounds of the locked ward have beneficial implications for patients, locked doors tend to clearly define the tasks of inpatient staff and help them to work together. Moreover, because of the need for medication and aggression management in the hospital, inpatient staff/patient ratio tends to be relatively large, staffed with nurses and psychiatric technicians around the clock. Large teams working together as an integrated body are able to jointly produce token contingencies and monitor one another for proper implementation. The patient to staff

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1While some clinicians argue that patients who resign from or are asked to no longer attend a program learn from the “termination experience,” these patients do NOT acquire the necessary repertoire of skills without attending a psychoeducational program. Hence, the first targeted behavior of all community programs is to increase the rate of daily attendance.
outpatients (Keller, 1985). The community token economies,1 frequency in which these staff can occur daily in the target room, beds, showers, at wake treatment times, etc., during the day are not falling outside family members are likely to be concerned about behaviors that are greatly...

Locked wards also prevent family members or friends from unintentionally undermining specific contingencies. For example, parents cannot bring unlimited sweets to patients in the hospital thereby satiating their desire for a potent backup reinforcer. The efficacy of contingencies in the community may be diminished by "concerned" family members that are flooding their child with commodities. Community programs have little control over the gifts patients receive from friends and family.

Strategies that Facilitate Community-Based Token Economies

Given all the barriers to implementing token economies in the community, why not discard this strategy for alternative intervention methods? Amongst the many facets of the mission of community programs, two goals are paramount: to facilitate the acquisition of social and coping skills that help patients resolve future community problems, and to provide incentives so that patients use newly acquired behaviors (Corrigan, Davies-Farmer, Lightstone, & Stolley, 1990). As a result, more frequent performance of social and coping skills will decrease the severe mentally ill adult's vulnerability to stress and diminish the likelihood of returning to the hospital (Liberman et al., 1986). Token economies provide the most comprehensive and rigorous methods to provide incentives for newly acquired skills. Rather than throw the baby out with the bath water, several strategies exist which may increase the potency of token economies in community programs:

2Many of the examples in this manuscript used cigarettes as the reinforcing consequence. Due to the health hazards from chronic smoking, what responsibilities should clinicians assume in using cigarettes as reinforcers? For most patients, cigarettes rank among the most prized commodities not available in the token economy. Therefore, instead of removing potential control over patient behavior, use of cigarettes increase social and coping skills and improve compliance with treatment regimen. As the patients repertoire improves, patients are better able to learn "quit smoking" strategies.
1. Replace Response Costs with Alternative Interventions. Repeated use of response cost to diminish the rate of inappropriate behaviors may result in patients avoiding the aversive consequence by dropping out of the treatment program. Targeting inappropriate or maladaptive community behaviors with aversive contingencies tends to be a reactive response to a perceived threat to members of the outpatient program or to the continued community tenure of the patient. Rather than reacting to responses indiscriminantly and developing punitive consequences quickly, the severity of behaviors needs to be evaluated. If the patient is demonstrating aggressive behaviors that pose an imminent threat to the patient or others, community care may need to be supplanted by temporary inpatient treatment. However, many inappropriate responses do not pose an imminent or significant threat to others in the outpatient program such that effective, though slower acting, alternatives to response cost can be used.

The proactive nature of token economies tends to decrease aggressive and maladaptive behaviors over the long term (Paul & Lentz, 1977). Staff implementing token economies are constantly identifying prosocial behaviors and increasing their frequency with appropriate consequences. As a result, patients with an improved repertoire of social and coping skills will experience less interpersonal frustration. When social dilemmas arise, socially skilled patients will be able to resolve the difficulty without resorting to aggression.

Nevertheless, socially inappropriate and aggressive behaviors occur in outpatient settings. Two schedules of reinforcement provide less punitive means by which inappropriate behaviors can be diminished: differential reinforcement of other behaviors (DRO) and differential reinforcement of incompatible behaviors (DRI) (Bostow & Bailey, 1969; Homer & Peterson, 1980; Zeiler, 1976). When using a DRO schedule, all behaviors other than the inappropriate target are reinforced throughout the day. For example, John received two tokens for every five minutes he did not yell out in anger. The specific schedule in which payoffs and time periods are defined depend on the frequency with which the patient emits the targeted behavior. As the rate of the behavior decreases, the size of the payoff and the frequency of reinforcement is slowly faded. Unfortunately, DRO schedules tend to be staff costly, requiring clinicians to be constantly vigilant for the target and to hand out tokens after each time interval has elapsed without an episode. The DRI is a more efficient schedule in which patients are reinforced every time they perform a behavior incompatible with the target. In this example, John received five tokens every time he made an assertive remark rather than yelling.
Many maladaptive behaviors are maintained by social reinforcers. Hence, removal of these reinforcers using an extinction protocol can reduce the frequency of targeted behaviors. If used consistently, extinction is an effective means by which the rate of inappropriate behaviors can be diminished (Liberman et al., 1974). For extinction to be successful, ALL staff must not interact with the patient during demonstration of the inappropriate behavior. Laboratory research has shown that the rate of targeted behaviors increases rather than decreases shortly after extinction begins (Skinner, 1953). Hence, staff must be encouraged to persevere and not attend to the patient until the behavior stops. Extinction works best when paired with a reinforcement contingency in which the patient receives tokens and social reinforcement for appropriate behaviors that follow the extinguished response.

2. Provide Reinforcers Cheaply. The efficacy of community-based token economies is diminished by the availability of outside reinforcers. The potency of outside reinforcers can in turn be decreased by providing easily attainable backup reinforcers in the token milieu. Hence, highly desirable items like coffee, sweets, and cigarettes need to be available at low token costs. The range of backup reinforcers should be broad as well, offering a veritable smorgasbord of commodities and reinforcing experiences. These rewards can include other food stuffs, clothes, and hygiene products; bus passes and subway tokens; and special outings to the zoo, parks, beaches, concerts, and circuses.

The potency of outpatient reinforcers is enhanced by strategically and directly competing with commodities available in the community. As a result, the contingencies in community programs need to be fairly rich, i.e., payoffs need to be fairly high for behaviors that can be performed with only a moderate level of effort. In this way, patients are able to receive large quantities of tokens to purchase commodities that supplement their meager community income. If patients are earning "too few" tokens such that they rarely perform targeted behaviors and seem angry or lethargic, staff should assess whether contingencies are excessively difficult and adjust targets and pay-offs accordingly. As the rate of targeted behaviors increases and the amount of tokens rises, contingencies can be slowly faded. At the same time, contingencies for newly targeted behaviors can be established.

Most community mental health programs report insufficient funds to conduct typical treatment protocols (Repucci & Saunders, 1974). How does a community program find the necessary resources to stock the shelves of a token store and provide special outings? Many large corporations have a division that passes out damaged products—dented cans
and torn garments that can not be sold in most stores—and are seeking not-for-profit agencies to receive the goods in exchange for tax deductions and the gratification that comes from performing good deeds. Similarly, many entertainment companies will provide free tickets for not-for-profit groups to attend. Charitable groups that collect food and clothes for homeless can be approached to funnel recycled products to the community program for use as backup reinforcers. Despite these resources, monetary funds will be necessary to fill in gaps at the token store. Frequently, when key administrative personnel are educated regarding the efficacy of the token economy, state or local funding agencies may be more willing to allocate one or two hundred dollars per month to buy backup reinforcers (Liberman, 1979).

3. Include Other Systems in the Treatment Program. Training other systems to identify and implement token contingencies broadens the range of skills that can be affected by a community-based token economy. Practitioners and family members who are with the patient at hours beyond the outpatient program are able to reinforce behaviors that cannot be targeted during day treatment. Moreover, including other systems increases the number of situations in which targeted skills are reinforced. In this way, generalization of token economy effects are enhanced.

Of the chronic psychiatric patients living in the community, almost two-thirds are cared for by family members (Goldman & Gatozzi, 1981). Moreover, family members have great impact on patients and the course of treatment (Falloon, Boyd, & McGill, 1984; Imber Mintz, Liberman, Miklowitz, & Mintz, 1987). Accordingly, Falloon and his colleagues have taught family members how to manage contingencies to help patients use appropriate skills. Training consists of (1) didactic presentation of the utility of operant conditioning approaches, (2) identification of appropriate skills, (3) negotiating a token contingency, and (4) establishing exchange rules. Typically, these sessions are embedded in more comprehensive behavior family therapy that includes communication and problem solving skills training. After training, staff members of day treatment programs can "collaborate" with educated families so that all parties are vigilant to patient problem behaviors and so that token contingencies are implemented during the day at the outpatient program and at home in the evening.

The other major system that interacts with the patient is the board-and-care staff. They are usually responsible for managing morning and evening hygiene skills as well as cooking and housekeeping skills for
patients that do not live with their family. Unfortunately, board-and-care practitioners do not always share the same rehabilitative goals or fundamental skills as do professionals that staff day treatment programs. As a result, day treatment plans may not be extended into residential settings. Training board-and-care staff on these skills may increase the efficacy of token contingencies (Bernstein, 1983). Training can be provided by the day treatment staff during hour-long weekly inservices conducted at the board-and-care home. Content of the training series parallels topics discussed with the family. After initial training, personnel from both service agencies can regularly meet to discuss specific observations regarding patients’ problems and to jointly develop token contingencies to modify these problems.

**IMPLICATIONS FOR FUTURE RESEARCH**

The benefits and limitations of strategies that increase the efficacy of token economies in the community need to be tested in future investigations. However, just as there are limits to using the token economy in outpatient programs, so there exists methodological barriers that prevent easy study of operant strategies in natural settings (Baer, 1985; Denkowski & Denkowski, 1985b). The lack of control that distinguishes inpatient from outpatient programs also accounts for confounds in investigations conducted on community-based token economies. For example, day treatment only occurs during the three to eight hours patients are with the staff. Treatment effects may be confounded by unobserved events that occur the rest of the day.

Investigators testing outpatient programs need to identify all other community services providing treatment to subjects in their study. Specifically, aspects of other services that may affect dependent measures included in the research design need to be defined (e.g., board-and-care operators are training residents to cook; welfare office social workers are coaching patients on job finding skills). Professionals in these collateral services should be notified about the research program and requested to temporarily halt treatment of these patients. Frequently, governmental bodies funding the research may be able to intervene with the other treatment services and preserve the integrity of the investigation. However, if conflicting policies prevent other agencies from ceasing their services, the level of collateral treatment across experimental conditions must be equated. Equal number of subjects in the treatment and control conditions of the study should receive equal
time being treated by the other agencies. In these situations, conclusions should be reported as an interaction of targeted outpatient and collateral treatments.

Random assignment to treatment groups can be difficult in community settings as well. Frequently, governmental bodies funding the clinic and its research may require the most severe patients to be assigned to active treatment; if these patients are randomly assigned to a waiting list control, they do not receive immediate treatment and may rapidly deteriorate (Corrigan, Davies-Farmer, Lightstone, & Stolley, 1990). Without random assignment however, results may be attributed to sampling biases or regression to the mean. In situations where randomization did not occur, differences in the samples that comprise treatment conditions need to be analyzed. Statistical comparisons of the samples prior to treatment over all dependent measures and subject variables may accomplish this task. Subsequent research findings should be adjusted by these differences. In addition, nonparametric statistics are used, which yield less robust findings. Hence, interpretations of the statistical analyses need to be made tentatively.

In studies where contrasting forms of outpatient care are compared (e.g., token economy versus recreation therapy), insufficient number of staff may prevent the two treatments from being provided concurrently (Denkowski & Denkowski, 1985a). As a result, treatment is provided to independent groups sequentially and any significant outcome found in the two treatments may be attributed to history effects. Perhaps, some community event that was occurring simultaneously to presentation of one of the treatment groups enhanced outcome thereby confounded comparisons between the treatment and control groups. For example, Kazdin (1982) believed that the significant decrease in hospitalization days found for patients who completed token economies during the late 1960s may represent concurrent effects of the deinstitutionalization movement. This problem can be obviated by reducing the size of comparison programs so they can be conducted simultaneously. For example, rather than requiring four staff members to conduct a token economy for 32 patients, two staff members can implement a token economy for sixteen patients while the remaining staff members carry out the comparison recreation therapy.

Conducting studies in the community diminishes the internal validity of experimental investigations of token economy. However, findings from studies with large internal validity typically do not resemble real-life settings, and ecological validity is diminished. Community-based studies may have better ecological validity than their inpatient
counterparts. Community investigators that incorporate these research strategies into their design will expand our knowledge regarding approaches that increase the efficacy of the token economy in community settings.

REFERENCES


