THE NEXT STEP

Take the network into treatment

It's beginning to look like the most promising way forward for treatment – not more therapists, but harnessing friends, lovers, sons, daughters and workmates to reconstruct the incentives in a client's life to promote recovery – a form of benevolent social engineering gaining ground here and in the USA.

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The community reinforcement approach (CRA) is a comprehensive cognitive-behavioural programme for treating substance abuse problems based on the belief that environmental contingencies can play a powerful role in supporting or discouraging drinking or drug use. As such, it uses familial, social, recreational, and occupational reinforcers to aid recovery. The goal is to rearrange an individual's 'community' so that a clean and sober lifestyle is more rewarding than one dominated by alcohol and drugs.[1] This it accomplishes in a non-confrontational manner by first carefully identifying the external and internal triggers for an individual's substance use, and reviewing both its positive and negative consequences. The resulting treatment plan embraces many aspects of the individual's life believed to be integral to their substance use. Importantly, this often includes the individual's job and social activities. When skill deficits are noted, behavioural training is introduced in the relevant areas (eg, drink/drug refusal, communication training, problem-solving). Significant others are involved whenever possible.[2]

Despite somewhat different methodologies, in each of three recent meta-analytic reviews community reinforcement ranked as one of the most efficacious and cost-effective alcohol treatments available. The initial review ranked 33 treatments on the basis of cost and whether in follow-up studies they had statistically been proven superior to another intervention.[3] Community reinforcement came fifth. The next analysis also took into account the methodological quality of the studies.[4] Among 30 treatments tested in at least three studies, community reinforcement was placed fourth. The final review factored in the probability that a study would yield a significant effect by considering issues such as sample size, strength of the comparison treatment, and the number of statistical tests.[5] Community reinforcement earned top position in this ranking of 36 interventions. Regardless of the precise manner in which the various analyses were conducted, the findings consistently suggested that community reinforcement was one of the most effective alcohol treatments available.

Early alcohol studies show promise

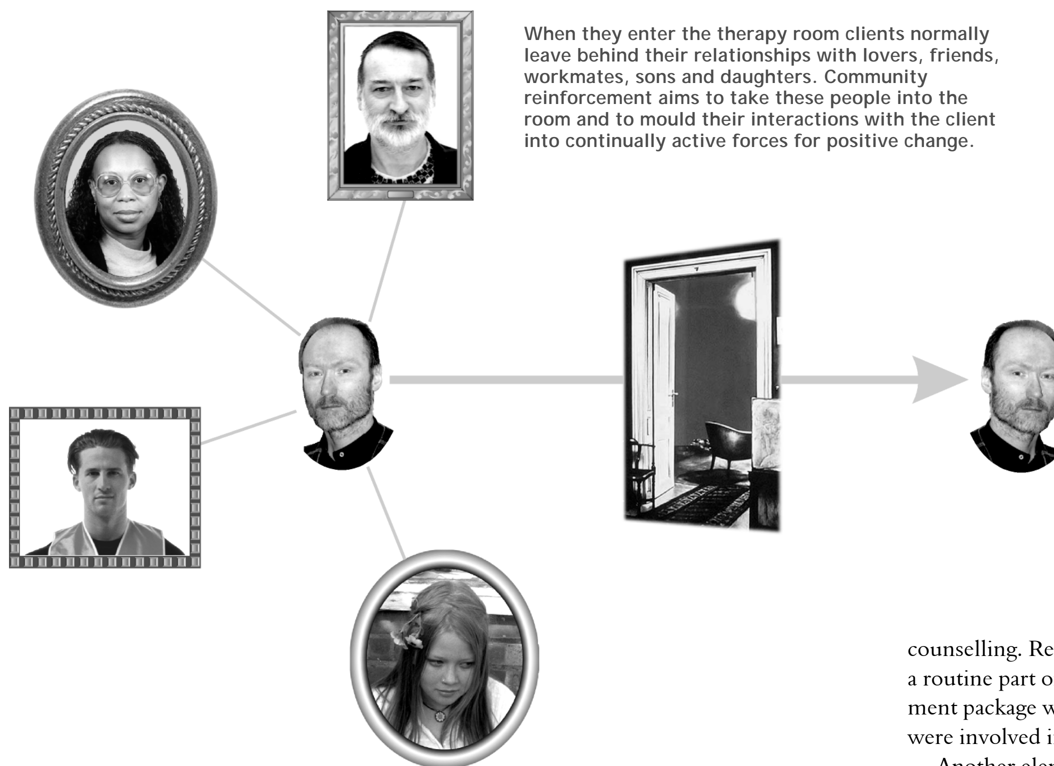
Community reinforcement's efficacy was first demonstrated over 25 years ago in a small inpatient sample of alcohol dependents and then in the early 1980s among alcohol outpatients. Since then there have been larger scale replications and extensions to other populations.

Striking gains after inpatient treatment

Using a matched-control design, the first study[1] randomly assigned one alcohol-dependent member in each of eight pairs to the hospital's standard Alcoholics Anonymous programme (instruction on the Jellinek disease model of alcoholism[6] and discussions about the typical alcoholic's behaviour and problems), or to this plus a community reinforcement intervention involving guidance on how to identify and access non-drinking reinforcers, job and leisure-time counselling, and relapse prevention through home visits and encouragement to attend an alcohol-free social club. Married participants also received behavioural couples therapy.

At the six-month follow-up, on average community reinforcement participants had drunk alcohol on 14% of follow-up days compared to 79% after standard treatment. Another striking difference was that the community reinforcement group had been unemployed on an average 5% of days, the standard group 62%. Furthermore, community reinforcement participants were hospitalised on only 2% of follow-up days compared to 27% after standard treatment. Despite its small samples, the study was recognised as unique for its reliance on operant reinforcement theory for the conceptualisation and treatment of alcoholism and for focusing on outcomes beyond substance abuse.

Nathan Azrin was involved in the first trial and also in the second, in which encouragement to take disulfiram was added to the standard treatment.[7] New community reinforcement procedures included a compliance programme which monitored disulfiram intake and rewarded individuals for taking the medication, an early warning system to identify potential relapses, and social support in the form of a 'buddy' system. Again, at the six-month follow-up the community reinforcement group showed superior outcomes across a variety of areas. On average they had drank on 2% of follow-up days compared to 55% after standard treatment, and had been unemployed on 20% compared to 56%. None of the community reinforcement participants were institutionalised while on average patients receiving only standard treatment were institutionalised on 45% of follow-up days.



When they enter the therapy room clients normally leave behind their relationships with lovers, friends, workmates, sons and daughters. Community reinforcement aims to take these people into the room and to mould their interactions with the client into continually active forces for positive change.

Outpatients also benefit

In the early 1980s Azrin and colleagues conducted the first outpatient trial.[8] The aim was to contrast the CRA disulfiram compliance programme[7] with a traditional disulfiram regime, and to test an abbreviated form of community reinforcement. It showed that this approach could be successful on an outpatient basis and with an average of only five sessions.

All 43 participants underwent traditional treatment comprising 12-step counselling and disulfiram. Along with their significant others, a randomly assigned third were also taught the disulfiram compliance procedure, using communication training and role-play to teach the significant other how to administer disulfiram in a supportive manner. Another randomly assigned third received all the previous inputs plus a broader community reinforcement intervention. This was based on the earlier study[7] but included new elements such as drink-refusal and relaxation training and sobriety sampling – a "gently" negotiated contract for an alcohol-free period. The middle condition, essentially 12-step counselling plus CRA disulfiram compliance procedures, was expected to produce outcomes between the other two.

As predicted, the two groups trained in disulfiram compliance reported the highest abstinence rates. During the sixth month of the follow-up, patients in traditional treatment were abstinent on 45% of days. With compliance training this rose to 74% and to 97% when the broader community reinforcement elements had also been added. Interestingly, in the 'middle' disulfiram compliance group, couples performed better than single individuals, achieving abstinence rates similar to those of the community reinforcement group. Although this difference was not significant, patients offered the full community reinforcement intervention were unemployed on just 7% of follow-up days compared to 36% after traditional treatment.

Active ingredients

Typically, community reinforcement is offered as a varied package of measures, but some studies have tested selected components. The couples component featuring 'reciprocity counselling' was first tested in a study focused on marital distress.[9] The therapy helped couples select and initiate new, mutually reinforcing interactions, and instilled an expectation that a reinforcing act by one partner would be reciprocated. During the weeks they practised this therapy, the 12 couples in the study demonstrated significant improvements in marital happiness compared to the weeks of 'catharsis-type' counselling. Reciprocity counselling became a routine part of the community reinforcement package whenever problem drinkers were involved in significant relationships.

Another element to have been studied separately is the 'social club', an alcohol-free recreational environment typically open at high-risk periods such as Friday and Saturday nights.[10] The study also tested whether behavioural procedures could motivate attendance. Participants were 35 alcohol-dependent individuals already in outpatient treatment. They were randomly assigned to a control group simply given information about the club, or to receive encouragement to attend through multiple contacts with a counsellor who also problem-solved attendance obstacles and provided membership cards and flyers about forthcoming activities.

Not only did the 'encouragement' group attend significantly more often than the controls, over the same period they also drank significantly less. Though the study could be criticised for its limited information on the participants' outpatient treatment, nevertheless it offered a promising procedure for encouraging a potentially valuable activity. Furthermore, it highlighted the importance of addressing recreational life as part of the recovery process.

Golden Bullets

Practice points from this article

- The community reinforcement approach aims to rearrange an individual's social and working life so that sobriety is more rewarding than a life dominated by alcohol or drugs.
- Recent assessments ranked it as one of the most cost-effective alcohol treatments available.
- It has been found effective as an adjunct to disulfiram treatment of alcoholism, contingency management and disulfiram regimes for cocaine problems, maintenance treatment of opiate addiction, and in helping families and friends encourage reluctant substance misusers into treatment.
- Active ingredients include medication compliance procedures, alcohol-free social clubs, and job-finding clubs.

The job club component has received repeated research attention. It aims to help participants obtain satisfying employment which reinforces non-drinking through enhanced self-esteem, financial rewards, and opportunities for pleasant social interaction. The skills outlined in the *Job Club Counselor's Manual*[11] include developing CVs, completing job applications, generating job leads, and rehearsing interviews. Its success was first demonstrated in populations who were not necessarily substance users.[12] One study involved referrals from probation officers and the state hospital as well as from substance abuse centres.[13] At the six-month follow-up, 95% of participants randomly assigned to the job club were employed but only 28% in the control group. They had also acquired higher-paying positions and done so faster. Impressive benefits were also apparent in a study of welfare recipients.[14] As noted above, the job club was also quite successful as part of the complete community reinforcement package.[1 7 8]

Later studies confirm early work

These seminal studies have since been extended to larger sample sizes and different drinking populations, with essentially the same positive results.

With and without disulfiram

A large-scale (237 participants) replication and extension of Azrin's work was conducted by William Miller and colleagues. It addressed many of the earlier methodological limitations such as small sample sizes.[15] The first three conditions were similar to those in first outpatient study:[8] traditional treatment including disulfiram; traditional treatment plus disulfiram compliance training; disulfiram compliance plus a broader community reinforcement package. A fourth condition, community reinforcement *without* disulfiram, was added to determine whether disulfiram was critical to the CRA package.

In terms of their drinking, during follow-up months one to six patients generally did significantly better in the community reinforcement conditions.[16] The most pronounced contrast was between the proportion of drinking days, just 3% versus 19% in traditional treatment. However, when disulfiram compliance training was added to traditional treatment, the combination was as effective as community reinforcement. At later follow-ups over a year after treatment intake there were no significant differences between the groups.

The study also included patients ineligible for or who refused disulfiram. They were assigned either to community reinforcement or to traditional treatment. The only difference was a much lower drop-out rate in community reinforcement – 9% compared to 41% of controls.

In summary, when the follow-up period was roughly comparable to the earlier studies (ie, six months), so too were the findings, in two ways. First, community reinforcement was superior to traditional treatment in terms of drinking outcomes. Second, when disulfiram compliance training was added to traditional treatment, outcomes were raised to a level similar to those achieved by community reinforcement – an effect detected earlier, though only for married clients.[8]

Homeless drinkers also respond well

The most recent study was conducted by Jane Ellen Smith and colleagues, notable for its cost-effective group format and high follow-up and low drop-out rates. It involved 106 alcohol-dependent men and women recruited from shelters for the homeless.[17] They were randomly assigned to the shelter's standard treatment (including access to 12-step counsellors, on-site AA meetings, and a job programme) or to a community reinforcement programme modified for the homeless. Modifications included group delivery, small incentives for attendance, using the project nurse as the disulfiram monitor, and independent-living skills groups. All participants received abstinence-contingent grant-supported housing during the three-month programme.

In terms of drinking outcomes, the overall average number of drinks per day dropped from 19 before treatment to about four at 12 months. As predicted, participants in the community reinforcement condition significantly outperformed those in the standard condition, with the differences most consistent across the various drinking variables through to the nine-month follow-up.

Other predicted effects did not emerge. Neither initial willingness to take disulfiram nor its actual use were associated with better drinking outcomes. Marked improvements in employment and housing status were noted but with one exception did not significantly differ across the groups. The exception was better housing at four months in the community reinforcement group.

Beyond alcohol to illegal drugs

As with many of the alcohol studies, when applied to clients dependent on illicit drugs, community reinforcement has usually been allied with other treatments.

Cocaine abstinence reinforced

In the treatment of cocaine dependence, community reinforcement has typically been supplemented by a contingency management programme which rewards clean urines with vouchers which can be exchanged for commodities. Financial reinforcers were added to address the high early drop-out rates of cocaine-dependent individuals and to have a tool early in treatment which can compete with cocaine's powerful reinforcing effects.

Several trials have established the efficacy of this community reinforcement/voucher combination. In one randomised study, 58% of participants given this combination completed 24 weeks of treatment but only 11% in standard counselling.[18] Also, 68% and 42% respectively maintained eight and 16 weeks of continuous abstinence from cocaine compared to only 11% and 5% in standard counselling. Urinalyses documented significantly greater cocaine abstinence in the community reinforcement/voucher group at the nine- and 12-month follow-ups.

More recent studies have attempted to tease out the unique contribution of the contingent vouchers part of the combination. Some found that the significant extra benefit gained by vouchers during treatment persists

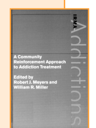
Manuals and practice guides

Despite its research pedigree, community reinforcement has not been widely adopted in the UK or in its US homeland, perhaps because it seems a more complex way of way of engaging with a client's life than focusing exclusively on them and their substance misuse problem. However, a similar approach (social behaviour and network therapy) has been implemented as part of the UK's national alcohol treatment trial (UKATT) and has proved feasible when adapted for drug users attending a community drug service.[1]

Two of the authors of the present review have gathered together relevant research in one of the prestigious *International Research Monographs in the Addictions*.[2] This readable volume also includes examples of community reinforcement in action. There also two readily available manuals, one covering alcohol treatment,[3] the other cocaine.[4]

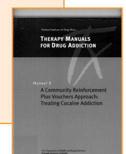
1 Williamson E. *et al.* "Implementing and evaluating social behaviour and network therapy in routine service provision in the UK." Presented at the Society for the Study of Addiction Annual Symposium 2003, 6–7 November 2003.

2 Meyers R.J, Miller W.R., *eds. A community reinforcement approach to addiction treatment.* Cambridge University Press, 2001. Copies through bookshops.



3 Meyers R.J. *et al. Clinical guide to alcohol treatment: the community reinforcement approach.* New York: Guildford Press, 1995. Copies through bookshops.

4 Budney A.J. *et al. A community reinforcement plus vouchers approach: treating cocaine addiction.* US National Institute on Drug Abuse, 1998. Download from www.nida.nih.gov/DrugPages/Treatment.html or contact US National Clearinghouse for Alcohol and Drug Information, fax 00 1 301 468 6433, e-mail info@health.org.



after the vouchers are withdrawn,[20] others that it is lost across the follow-up.[19]

Disulfiram compliance training is one of the original community reinforcement components which has been examined separately in cocaine trials. Initially introduced to decrease alcohol consumption, for various reasons disulfiram has great promise in cocaine treatment as well. Two randomised trials have found that cocaine-dependent patients who as part of their treatment received disulfiram and disulfiram compliance training evidenced significantly greater cocaine and alcohol abstinence than individuals who did not receive these elements.[21 22]

Opiate addiction pharmacotherapy

Pharmacotherapies for opiate addiction are enhanced by effective psychosocial interventions.[23] Among those which have been tested is community reinforcement. In one study, 39 patients undergoing buprenorphine detoxification were randomly assigned to either a community reinforcement plus vouchers condition or to standard drug counselling.[24] The voucher regime was unique in that half the vouchers could be earned for opiate-free urines and half for engaging in activities 'prescribed' as part of the treatment. Just over half the community reinforcement/vouchers patients completed the 24-week detoxification but only a fifth of counselling patients, a statistically significant difference.

Another statistically significant effect was noted in a study which used community reinforcement *without* vouchers to treat 181 methadone-maintained patients.[25] Of those assigned to community reinforcement (with or without additional relapse prevention training), 89% achieved at least three weeks continuous abstinence versus 78% assigned to standard drug counselling. Additionally, the community reinforcement groups showed significantly greater improvement on the drug composite score of the *Addiction Severity Index*.

Promoting treatment entry

Community reinforcement has recently been extended to address a sizeable segment of the substance abusing population: those unwilling to seek treatment. Rather than attempting to motivate them directly, the community reinforcement variant called Community Reinforcement and Family Training (CRAFT) instead works through a 'concerned significant other' associated with the substance user. CRAFT trains these associates in behavioural techniques (positive reinforcement for clean/sober behaviour, withholding reinforcement for substance using behaviour) which change how they interact with the user in order to encourage them to enter treatment. It also directly improves the psychosocial functioning of the associates.

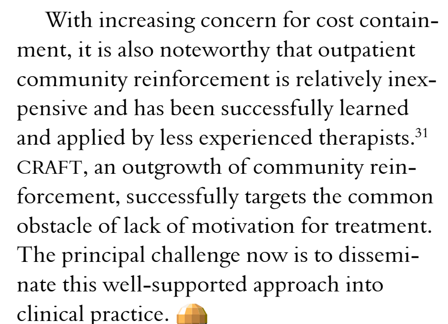
An early version of CRAFT was found significantly superior to Al-Anon in engaging resistant alcohol-dependent individuals in treatment.[26] Six of the seven drinkers whose associates received CRAFT training entered treatment, but none of the five whose associates received traditional counselling. In a large study of 130 problem drinkers conducted by William Miller and colleagues, associates assigned to CRAFT engaged significantly more of their loved ones in alcohol treatment (64%) than those assigned to either the Johnson Institute intervention (30%) or to Al-Anon (13%).[27]

Similar results have been found with illicit drug abusers. An uncontrolled trial involving 62 associates discovered that after CRAFT training 74% successfully engaged the resistant user in treatment.[28] A randomised study detected significant differences when the engagement rates of CRAFT-trained associates (64% engaged) were compared to those of associates who had attended 12-step meetings (17% engaged).[29] The latest study was conducted by our unit in Albuquerque with 90 associates. Again it discovered significantly better engagement rates for those randomly assigned to CRAFT (67%) versus those assigned to individual twelve-step facilitation therapy (31%).[30] In summary, CRAFT consistently outperforms other interventions in engaging resistant problem alcohol or drug users in treatment.

Challenge now is dissemination

The evidence strongly supports the use of community reinforcement and CRAFT in the treatment of substance use disorders. Azrin's initial findings have been replicated by several research groups across culturally diverse populations. Typically, community reinforcement has been compared with standard approaches in randomised trials, providing a stringent test of relative efficacy. Importantly, every study to date has found an advantage for community reinforcement on at least some outcome measures.

With increasing concern for cost containment, it is also noteworthy that outpatient community reinforcement is relatively inexpensive and has been successfully learned and applied by less experienced therapists.[31] CRAFT, an outgrowth of community reinforcement, successfully targets the common obstacle of lack of motivation for treatment. The principal challenge now is to disseminate this well-supported approach into clinical practice.



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