Druglink page for November/December 2013

REWARDING VIRTUE

British services are trialling an approach about which in one survey most clinicians had major ethical concerns – contingency management.

The corresponding hot topic is periodically updated and may include more recent findings.

Can we dispense with counselling, therapy, with treatment as we know it, and just punish people or deprive them of rewards when they use substances in ways they and/or we wish them not to, and reward them when they behave as we and/or they would wish? For certain groups over whom considerable leverage can be exercised, this is not just mooted but already being implemented.

What these programmes are doing is managing the consequences of a person's actions – ensuring that something pre-programmed happens to them contingent on them acting or not acting in the specified way(s). More broadly, such 'contingency management' programmes have been trialled for people seeking treatment, either as standalone programmes or to reinforce psychosocial therapies or drug-based treatments. In these guises, commonly rewards like shopping vouchers are offered if the patient avoids use of the targeted substance(s) or engages more fully with therapy, and withheld if they do not. But there may also be punishments when the hold on the patient is sufficient to permit this, such as in methadone programmes.

These procedures are in theory based on operant conditioning, the systematic linking of incentives or sanctions to actions to 'shape' behaviour, as when the Skinnerian rat learns to press a lever for food or to avoid an electric shock when they hear a certain sound. Unlike the Pavlovian dog, which simply reflexively salivated to a stimulus which had been repeatedly paired with food, these rats have to deliberately *do* something ('operate') in response to the stimulus. Applied to human clients and patients, the aim is to 'nudge' behaviour in a pro-therapeutic direction, much as the usual gamut of approbation, disapproval and good or bad consequences shape how we behave in everyday life. Contingency management formalises this process in to a consistent and codified schedule.

Contingency management was one of only two psychosocial therapies recommended by Britain's National Institute for Health and Clinical Excellence (NICE) for the treatment of problems related to illicit drug use. Typically the promising results which persuaded the NICE committee were seen during the time the rewards and sanctions were in place, often 12 weeks; many trials do not go beyond that time to see if the benefits persist. These results must be set alongside ethical concerns (including aggravation of health inequality if only already promising patients qualify for and feel the therapeutic effect of the prizes), professional and public resistance, the common finding that in-treatment gains do not persist, and some evidence that intrinsic motivation may be undermined if patients see themselves as 'just doing it for the prizes'.

Role in methadone treatment and beyond

The homeland of contingency management is methadone programmes, because the prescribing element and the hold this has over patients creates opportunities for non-material as well as material rewards and sanctions, for example, by making patients attend more often or at less convenient times, attend more counselling (a strange comment on the attractiveness of the counselling), and to submit to more supervision of their methadone consumption rather than being able to take it at home.

At first seemingly on average effective, the most recent synthesis of the evidence found that across all relevant randomised studies, such procedures made no difference to opiate use or retention, a testament to the power of methadone itself. However, that power does not extend so well to taking non-opiate drugs, particularly cocaine, not considered by the review.

That may be part of the reason why the review's findings differed from those of an earlier synthesis of the research on methadone treatment, which combined outcomes from contingency programmes targeting different drugs, and generally several drugs at once. It found 30 relevant studies across which the systematic application of incentives led to more drug-free urine tests. Though effects were significantly smaller than in non-randomised trials, this was also the case among the 17 trials which randomly allocated patients, but effects were modest, and even more so when urine tests were conducted less than three times a week.

Narrowing in on cocaine, another review confirmed that contingency management has successfully targeted use of this drug by methadone patients, while targeting heroin and cocaine together has generally been ineffective.

With no recognised medication to help patients resist taking the drug, cocaine dependence itself has been an important and sometimes successful target for contingency management trials.

Opiate detoxification programmes too have benefited from combining contingency management with pharmacological treatments, significantly reducing drop-out rates, opiate use during treatment, and missed appointments. The short-term time scale and goals of these programmes perhaps suit them to the temporary imposition of a contingency regimen.

Just for the money

The key message of one particularly probing US cannabis treatment trial was that these procedures do not produce lasting change simply by mechanically reinforcing the habit of non-use. More important is whether the experience fosters confidence that one can resist relapse, along with the motivation to transform 'can' in to 'will', and strategies to effectively implement this resolution. In other words, what the patient makes of their spell on the contingencies and how they interpret it determines whether it will result in a transient, reward-driven curb in substance use, or more lasting change.

Often patients act as if they interpret the procedures not as an opportunity to kick-start a lasting end to regular substance use, but as a chance to make some money or win some prizes, and do just what it takes (and no more) to achieve these objectives. When rewards end, generally patients quickly revert to their previous behaviours. Even during the rewards period, typically impacts are limited to the targeted behaviours and/or the targeted drugs. Leading researchers have suggested that lasting change is less likely if patients see abstinence as foisted on/enticed out of them by the rewards, rather than something they have shown they can achieve by their own efforts.

Can rewards undermine intrinsic motivation and confidence?

The potential for counterproductive impacts was revealed in a study which used vouchers to reward drug-free urine tests and consumption of the opiate-blocking medication naltrexone to maintain abstinence from opiates after detoxification. As expected, during the 12 weeks they were applied, the rewards encouraged patients to take their medication and stay free of opiate-type drugs. However, this did not presage lasting change. Within 12 weeks of the rewards ending, there was little difference between these patients and those not offered vouchers; by another 12 weeks, virtually none. A clue to the reason came in the observation that across the 12 weeks of treatment, motivation and readiness to change drug use behaviour increased slightly among patients *not* offered vouchers, but were significantly eroded among those rewarded for abstinence.

Other studies have not found motivation eroded relative to other treatments, but neither has it been enhanced by reinforcing abstinence, indicating that abstinence 'bought' by the rewards does not reflect heightened motivation to remain abstinent. In one

study, supplementing motivational and coping skills therapy with rewards halved what without the rewards was a substantial increase in the patients' confidence that they could refrain from smoking cannabis.

Outside the substance misuse sector, the potential for contingency management-type rewards to erode motivation is well recognised. An analysis aggregating results from 128 studies found that tangible rewards offered for engaging in, completing, or doing well at a task, undermined intrinsic motivation. The effect was greatest when assessed by what people did after the rewards ended, the equivalent of post-contingency substance use. However, the same analysis found that it is possible for rewards – especially verbal recognition – to be given in such a way that they acknowledge the individual's achievements, and bolster feelings of mastery rather than of being controlled. In these cases, the undermining effect can be reversed and intrinsic motivation enhanced.

Such findings help explain why in several studies (1 2 3) contingent rewards or punishments for engaging in treatment *did* improve attendance and compliance, but, contrary to the usual pattern, 'engagement' elicited in this way did *not* improve substance use or other outcomes.

The findings also help explain why occasionally this does *not* happen, for example, when rewards are experienced as a non-controlling signal of the individual's own achievements, and are embedded in a caring therapeutic environment which accompanies them with verbal and public recognition. Another exception was a study which achieved greater and more lasting abstinence by rewarding recovery-oriented activities rather than directly rewarding abstinence. In this case the rewards were delivered within a collaborative therapeutic relationship, empowering rather than controlling the patient. With their therapist, they could select activities to be rewarded in line with their own recovery plan and ability to complete the task. Findings from the broader psychological literature also help us understand the oft-reported power of verbal praise delivered by drug court judges to offenders, precisely the sort of unexpected, non-controlling recognition which would be expected to enhance motivation by reinforcing the offender's sense of control.

Integrate with other therapies

If how the patient interprets and what they do with their spell on contingencies are critical, then so too may be interactions which can influence these perceptions, and help patients make the most of a time when they are relatively free of substance use and have shown they can resist taking a drug despite their dependence.

In a trial with cannabis-dependent volunteers, the transience characteristic of contingency management's effects did not apply when it was combined with motivational/cognitive-behavioural therapy – in the longer term, the most effective of the options. Contingency management brought these patients in to contact with qualified and specially trained and supervised therapists who melded the urinalysis results and the rewards in to the therapeutic encounter, and who were in a position to influence the patient's interpretation of and response to the contingencies. Standalone contingency management involved relatively fleeting contact with the research assistant who administered the tests and rewards. Similar results were found in another cannabis treatment trial.

In contrast, when contingency management and cognitive-behavioural therapy have merely run in parallel (1 2 3), no longer term advantage from combining the two has materialised.

As this review of cocaine dependence treatment suggested, possibly material rewards can help initiate abstinence, while cognitive-behavioural therapy or restructuring everyday rewards and sanctions ('community reinforcement') can help sustain it by teaching enduring skills, changing thought patterns, and altering how the user's social circle responds to them.

Hill to climb

It would be a surprise indeed if offering often destitute patients housing, employment, money or goods, and the more despised among our population recognition and rewards, did not have powerful effects, at least while the contingencies are in place. Realising and making the most of this potential, while avoiding unintended consequences, is the task facing the researchers and clinicians who devise the programmes.

No matter how effective in studies, those tasked with implementing these programmes will still have the hill of 'It just doesn't feel right' to climb before they become as much part of the landscape of treatment as counselling and other 'talking therapies'. When clinicians in English opiate prescribing services were surveyed in the mid-2000s, most "felt the use of contingency management raises major ethical issues". Nevertheless, NICE's positive verdict prompted the English National Treatment Agency for Substance Misuse to organise a demonstration programme to trial implementing the approach. Larger trials are underway to evaluate the feasibility, acceptability and clinical and cost-effectiveness of contingency management in NHS drug treatment services.

Run this search for more from the Effectiveness Bank what researchers have discovered about this approach.