



The efficacy of a relapse prevention programme in the treatment of heroin dependence in China

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Abstract

Objective A relapse prevention programme (RP) for heroin addicts was designed and its short-term efficacy was assessed in China. **Methods** A control study was carried in a labour camp to assess the efficacy of a relapse prevention programme for heroin dependence by using the Addiction Severity Index (ASI), Beck Depression Inventory (BDI), and Self-Rating Anxiety Scale (SAS), Self-efficacy Scale (SE) and Self-esteem Scale (SES). **Results** Significant improvements in scores on the SAS, SE, and SES were found in the RP group after the relapse prevention training compared with those in the control group (7.85 ± 6.20 vs 1.07 ± 5.42 , 3.88 ± 3.60 vs 0.08 ± 2.89 , 3.83 ± 3.31 vs 0.78 ± 2.55). Compared with the control group, the relapse rates in the RP group were lower than in the LC group (63% vs 83%), and they had more improvements in ASI scores (0.59 ± 0.75 vs 0.06 ± 0.60) at 3-month follow-up. **Conclusions** The RP is effective in decreasing the anxiety, improving the self-efficacy and self-esteem of heroin addicts. The RP is effective in decreasing the relapse rate and promoting the rehabilitation of heroin dependence. It is emphasised that relapse prevention and other psychosocial intervention are an important component in the drug abuse treatment.

[Key words] Heroin dependence, relapse prevention, efficacy

Background

The drug use problem is a major global public health problem. In the recent two decades, drug use problems in China have increased rapidly (Hao, et al. 2002). Registered drug addicts numbered more than 1 million by the end of 2002, and it was estimated that the actual number of drug addicts was 8-10 times more than that (Li, Zhou and Stanton, 2002). Heroin is the primary drug used and it is primarily used by injection (74%) in China. Relapse is a formidable challenge in the treatment of all substance use disorders. Addicts in recovery are confronted with many psychological components such as urges, cues, and automatic thoughts regarding their maladaptive behaviours they are

attempting to modify. Theoretically, effective drug addiction treatment typically must involve psychological interventions to address those psychological problems (Fudala and Woody, 2004). Detoxification is not designed to address those psychological problems associated with addiction, and therefore does not typically produce lasting behavioural changes necessary for recovery (Zhao, et al. 2001; Cornelius, et al. 2003). The drug use problem reemerged in China just two decades ago. Typically drug addicts are only provided with medication detoxification and little evidence-based psychological intervention is available there. Therefore the relapse rates are as high as above 80% according to available reports (Zhao, et al. 2001) and the need for developing and transporting effective psychological interventions of relapse prevention is urgent in China.

The most influential and promising psychological treatment approach is Relapse Prevention (RP), which is based on the cognitive-behavioural model of Marlatt GA et al. It focuses primarily on helping patients develop skills to cope with putative high risk situations (Marlatt and Gordon, 1985). Reviews of the outcome literatures about the effectiveness of RP derived from Marlatt's approach are very positive (Larimer and Palmer, 1999). The overall goal of our project is to develop an integrated relapse prevention group therapy based on Marlatt's RP for patients with heroin dependence in China. The efficacy of the relapse prevention programme for heroin dependent patients was assessed by a control study in a labour camp where illegal drug users receive coercive rehabilitation programmes through labour and education in China. This kind of study is important in that it will provide theoretic and practical bases for establishing a long term effective psychological intervention for drug use problems and decrease the social, psychological and physical consequences of drug problems in China.

Methods

1. Design

A randomised trial compared (1) Labour Camp rehabilitation as Usual (LC) with (2) Labour Camp rehabilitation plus Relapse Prevention Programme (RP). Participants were assessed at entry to the trial, the point at the end of relapse prevention training within the labour camp, and three months after their release from the labour camp.



2. Participants

All 100 participants were chosen from the database of drug addicts in the Shanghai Rehabilitation Labour Camp between October 2001 and June 2002. The criteria for inclusion in the study were: dependence on heroin (DSM-IV criteria, American Psychiatric Association, 1994); being abstinent from heroin and having about three months in the labour camp before release; lived in Shanghai; received more than 5 years of education; signed the consent form. Those who had serious physical or mental illness were excluded. The 100 participants were randomised into two groups according to their registered number in the labour camp: Labour Camp rehabilitation as Usual (LC) and Labour Camp rehabilitation plus Relapse Prevention Programme (RP) with 50 participants in each group.

3. Measurements

The drug history: A drug history questionnaire was designed to collect demographic, drug history, treatment history and some psychosocial factors related to addiction.

Addiction Severity Index (ASI): The ASI is a structured clinical research interview designed by Mecllellan to provide information about areas of a patient's life in which there is often dysfunction associated with drugs, and it has been proved to have high reliability and validity (Makela, 2004). The potential problem areas are medical, legal, drug, alcohol, employment, family/social, and psychiatric. Sets of objective and subjective items from each of the problem areas are standardised and put together to produce a composite score that reflects the problem severity in each area. The reliability and validity of the Chinese version of the ASI were also satisfactory (Zhao, et al. 2004).

Beck Depression Inventory (BDI): The BDI is composed of 13 items to evaluate depression in the subjects. Each item is rated from 0 to 3 according to the degree by which it reflects a patient's state during the previous week. The BDI has a high internal consistency, test-retest reliability, and concurrent validity (Beck and Steer, 1984).

Self-Rating Anxiety Scale (SAS): The SAS is a 20-item self-report questionnaire with statements on a four-point scale of severity to evaluate anxiety in the subjects (Zung, 1971).

Self-esteem Scale (SES): A modified version of the Rosenberg Self-Esteem Scale was used to measure subjects' self-esteem. The scale includes ten items rated on a 4-point scale and it

demonstrated good internal consistency (Fleming and Courtney, 1984).

Self-efficacy Scale (SE): The Self-efficacy Scale developed by Qian (1995) was used to measure the extent to which individuals have confidence in their ability to solve problems. It showed good reliability and validity in depression populations (Qian, 1995).

4. Procedure

All participants received an extensive questionnaire mentioned above at intake after providing the consent form. After the intake procedure, the LC group received the regular labour camp rehabilitation programme consisting of didactic presentations that included didactic drug education classes, moral and legal education, physical exercise and physical labour. In addition to the regular labour camp rehabilitation programme, the RP group participated in the relapse prevention programme described below. All participants finished the ASI, BDI, SAS, SES and SE after they finished the relapse prevention training within the labour camp.

The relapse prevention programme: The relapse prevention programme includes two phases: 2-month relapse prevention training within the labour camp and 3-month aftercare intervention after being released from the labour camp. The relapse prevention training was a modified Marlatt's relapse prevention and adapted for group treatment of heroin-dependent participants. The group treatment consisted of 2-3 weekly 2-hour sessions, with each devoted to a specific topic. The relapse prevention training included ten topics focused on identifying and coping with high-risk situations, enhancing self-efficacy, lapse management, and cognitive restructuring to teach clients to anticipate the possibility of relapse and to recognise and cope with high-risk situations. These strategies also focused on enhancing the client's awareness of cognitive, emotional, and behavioural reactions in order to prevent a lapse from escalating into a relapse. An example is identification of situations and emotional states that produce craving and that are associated with a high risk of relapse; behavioural analysis of the relapse process; and role-play to develop skills to avoid situations that might trigger relapse, or, if these situations are encountered, to use alternative behaviours that do not lead to relapse. The group sessions were led by two certified psychologists who had been trained on this model. A variety of activities such as interpretation, demonstration, case discussion, video, role-play, games, assignment, and other activities were used to get the participants involved. After the participants were discharged from the labour camp, the 3-month aftercare intervention followed.



During the three aftercare interventions, the psychologist contacted the participants and their family members at least once a week to provide support and help, including reminding them of the relapse prevention skills and urine test, crisis intervention, occupational and family counselling, etc.

The follow-up: All the subjects were interviewed to access the ASI three months after their release from the labour camp. We also interviewed their family or the police in charge of them to obtain the reliable information if necessary. Those who claimed abstinence had to receive a urine test to confirm their report.

Statistical Analysis: All data are analysed by SPSS10.0. Paired t-test was used to determine the significance of the difference between different time points for the same group. We performed independent samples t-tests to measure the differences between the mean scores of the two groups at the follow-up, and determined the difference between the two groups' relapse rates with the chi-square test. The level of statistical significance was set at 0.05.

Results

1. Demographic Characteristics and Clinical Feature

The participants were 100 males with heroin dependence, and all were ethnic Han Chinese. They had an average age of 36.3 years and their average education was 9.8 years. 45% of the participants were unemployed. All subjects were heroin users who met the DSM-IV criterion for opiate dependence with an average drug use history of 5.1 years. Their first drug use age was 30.3 years old. 51% of the participants used heroin by injection. The majority of the participants experienced several drug treatment histories with an average of three times. Their previous longest abstinence time was 30.71±53.72 days. The variables in the LC group resembled those in the RP group in terms of demographic characteristics, drug use history, ASI composite scores, etc ($p>0.05$), which indicated the two groups were comparable.

2. Compare changes of SAS, BDI, SES and SE between groups

No difference was found between the LC and RP groups in the scores on the SAS, BDI, SES and SE ($P>0.05$) at baseline. Table 1 compared the changes in the scores on the SAS, BDI, SES and SE between the LC and RP groups after the relapse prevention training. Score changes refer to the pre

scores subtracted from post scores and values are reported as mean \pm standard deviation.

The results showed that after the relapse prevention training, the scores on the SAS in the RP group decreased significantly and the scores on the SES and SE improved significantly compared with the LC group, but no difference was found in score changes on the SAS ($P>0.05$).

Table 1: Compare score changes on SAS, BDI, SES and SE between groups

Scores changes	RP group (n=50)	LC group (n=50)	<i>t</i>	<i>p</i>
BDI	-0.20 \pm 3.67	1.37 \pm 4.69	-1.73	0.09
SAS	-7.85 \pm 6.20	-1.07 \pm 5.42	-4.98	0.00
SE	3.88 \pm 3.60	0.08 \pm 2.89	5.29	0.00
SES	3.83 \pm 3.31	0.78 \pm 2.55	4.58	0.00

3. The relapse rates at follow-up

When the 3-month follow-up ended, 7 individuals of the RP group (14%) and 8 of LC group (18%) were dropped because we could not locate the subjects by any means. No difference in the dropout rates was found between the RP and LC groups ($\chi^2=0.08$, $p=0.78$). At the end of the follow-up, 16 individuals (37%) in the RP group and 7 individuals (17%) in the LC group were abstinence confirmed by negative urine tests. The relapse rates in the LC group (63%) was higher than in the RP group (83%) ($\chi^2=4.54$, $p=0.03$). Among the relapsed subjects in the LC group, two re-entered the labour camp and another two died from overdose drug injection.

4. Improvements in ASI scores from admission to follow-up

No significant difference was found in the Addiction Severity Index scores at baseline between the LC and RP groups ($P>0.05$). Table 2 compared the improvements in ASI scores from baseline to follow-up between the two groups. Improvement scores equal the scores at follow-up subtracted from the scores at baseline, and values are reported as mean \pm standard deviation.

Independent t-test indicated that the RP group showed more improvements from baseline to follow-



up in ASI total scores and the scores in medical, employment, drug use, and psychiatric composite than the LC group. ASI legal problems composite scores in the RP group showed marginally more improvements than those in the LC group ($P=0.06$). The improvements in family/social composite scores were not different between the two groups.

Table 2 Improvements in ASI scores from admission to follow-up by group

Improvements scores	RP group (n=43)	LC group (n=42)	<i>t</i>	<i>p</i>
Medical	$-.06 \pm .16$	$0.01 \pm .13$	2.11	0.04
Employment	$-.08 \pm .14$	$0.03 \pm .12$	3.58	0.00
Heroin use	$-.30 \pm .31$	$-0.14 \pm .28$	2.44	0.02
Legal	$-.05 \pm .14$	$0.01 \pm .13$	1.91	0.06
Family/social	$-.01 \pm .14$	$-0.01 \pm .06$	0.02	0.98
Psychiatric	$-.10 \pm .17$	$-0.01 \pm .09$	2.97	0.00
Total score	$-.59 \pm .75$	$0.06 \pm .60$	4.22	0.00

Discussion

Relapse prevention (RP) is a cognitive-behavioural treatment (CBT) that seems particularly well suited for the aftercare phase of an overall treatment process. Typically RP involves: (1) the assessment of the environmental, interpersonal and emotional situations linked to increased risk of relapse, and (2) increased self-efficacy through the utilisation of improved and more varied coping skills. Several studies have provided theoretical and practical support for the RP model. Labour camp is one of the most common drug abuse rehabilitation programmes in China. This study developed an integrated relapse prevention programme based on the cognitive-behavioral model of Marlatt (1985). Our results showed more improvements among heroin addicts in the RP group than in LC group in terms of the addiction severity, self-esteem, self-efficacy, anxiety, etc. The relapse rate was lower in the RP group than that in the LC group (63% vs 83%). The result indicates that integrating the relapse prevention programme into the existing labour camp programme produced more improvements than the labour camp programme alone, and it is effective in lowering relapse rates and this is consistent with the conclusions from other studies of the RP model (Irvin

and et al, 1999; Zhao and Wang, 2004). Previous studies had found that addicts in labour camps showed higher depression, anxiety and other mood problems. Our study also showed that the subjects had higher SAS scores (48.31 ± 8.31) and BDI scores 12.01 ± 6.45 before release. The reason may probably be related to the various pressures they will face after they are discharged, such as unemployment, family conflicts and economic problems. Our results showed that the relapse prevention training improved anxiety significantly, but it did not improve depression among the drug addicts, which indicates that further intervention should address the depressions among drug addicts in order to obtain a good outcome. The conclusions from this study also supported the findings of the previous research that treatment for drug-addicted offenders during and after incarceration can have a significant beneficial effect upon future drug use, criminal behaviour, and social functioning (Wexler, Falkin and Lipton, 1990; Woody, 2003). Many studies showed that one of the most important predictors of drug abuse outcome is treatment intensity (Simpson, 1980). This is also supported by this study in that it enhances the treatment by integrating the relapse prevention programme into the existing labour camp rehabilitation, therefore producing a better outcome.

In China, drug addicts are sent into a labour camp where the drug addicts will spend one to three years to get rid of drugs through labour and education. Therefore it provides the drug addicts a good opportunity for rehabilitation. Given that labour camps were originally designed for offenders of minor crimes, the need of integrating an effective psychosocial treatment with the existing rehabilitation programme in a labour camp to produce a better outcome is compelling. Labour camps in China provide an ideal setting for relapse prevention for drug addicts because of the following features. First, the rigorous regulations guarantee a drug-free environment which sets a good basis for relapse prevention. Second, drug addicts are sent to the labour camp under legal pressure and this will increase treatment entry and retention greatly. Treatment retention is a crucial problem and its consequences are disastrous for treatment providers and researchers. Studies found that treatment completers are 2-3 times more likely to have significant substance abuse reductions than non-completers (Simpson, 1980). Furthermore, many researches have demonstrated that individuals who enter treatment under legal pressure have outcomes as favourable as those who enter treatment voluntarily. Based on the status of labour camps in China, we designed a relapse prevention programme that include resident-based relapse prevention group training and aftercare support. Results from the outcome follow-up study on the relapse intervention programme provide empirical support for implementing the relapse prevention programme in labour camp settings.



It is the first time that a relapse prevention programme has been implemented in China and it provides the practice and theoretic basis for the effective treatment of substance abuse in China. The following limitations should be addressed when the results are applied. The subjects are all males and the sample size are relatively small; the relapse prevention programme and the follow-up period was relatively short; the intensity of aftercare support is not enough due to the shortage of staff, and maybe this is the reason why the short term relapse rate was still higher (63%) than expected. Further study on both male and female participants with an improved relapse prevention programme is needed.

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