THE ADDITION OF A PSYCHOLOGICAL INTERVENTION TO A HOME DETOXIFICATION PROGRAMME

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Abstract — Aims: Home detoxification is a recognized method of treating problem drinkers within their own home environment. The aim of this research is to determine whether a relatively brief psychological intervention adds to its effectiveness. Methods: A pragmatic trial with 91 participants randomly assigned to either the psychological intervention or treatment as usual. Community Psychiatric Nurses were trained to administer the brief psychological intervention involving motivational interviewing, coping skills training and social support. A manual was developed in order to standardize the training and implementation. Results: At the 3 month and 12 month follow-up the psychological intervention resulted in significant positive changes in alcohol consumption, abstinence days, social satisfaction, self-esteem and alcohol-related problems. Further, a cost analysis confirmed that the psychological intervention was a ninth of the cost of inpatient treatment. Conclusions: Adding a psychological intervention to a home detoxification programme was successful and cost-effective.

INTRODUCTION

One of the main reasons for using alternative detoxification treatment programmes, rather than more traditional inpatient treatments, is the inherent high cost of inpatient care. Cooper (1995) estimated that, in the United Kingdom, 12% of mental health beds are utilized for alcohol withdrawal treatment and that 73% of all detoxification admissions are re-admissions. There is thus an obvious need to find alternative, effective and safe alcohol withdrawal treatments that are less costly than admission to hospital care. Outpatient detoxification programmes have been found to be at least half the cost of inpatient treatment (Kraus et al., 1986), while others have reported that outpatient programmes may be up to six times less expensive than the inpatient service (Klinjnsma, 1995; Feldman et al., 1975; Bartu and Saunders, 1994). Bartu and Saunders (1994) suggested, following findings from their comparative detoxification study, that a home detoxification programme might be as much as eight times cheaper (depending on the number of visits needed) than a comparable inpatient treatment programme. Cooper (1995) calculated home detoxification treatment to be 26% of the cost of inpatient treatment and suggested that patients detoxified in their own home are more likely to complete the treatment and remain abstinent for longer than patients who are treated in hospital.

There is strong evidence to support the safety and effectiveness of both outpatient and home detoxification (Freeman, 1997). There are also a number of other advantages such as reducing the stigma often attached to inpatient care, encouraging family involvement and support, and reducing the waiting list. Bartu and Saunders (1994) proposed that detoxification in the home is far more realistic in relation to alcohol, as patients are not isolated from drinking cues and drink triggers.

The aims of the current study are to develop and test the feasibility of a psychological intervention for use as an adjunct to a home detoxification programme; to assess the impact of this by completing follow-up interviews at 3 months and 12 months post treatment to assess consumption levels, dependence, alcohol-related problems, social satisfaction and health; and to assess the cost effectiveness of this intervention in comparison with other treatment approaches for detoxification.

METHODS

Design

In a pragmatic randomized trial two interventions were compared: treatment as usual (control) involving medication and support, and the psychological intervention, which added a structured psychological approach (manual directed) to the medication. Two main factors were therefore involved: these were treatment (two types) and occasion of assessment (three occasions).

Recruitment of participants

Participants were recruited by intake assessment medical staff from consecutive referrals to home detoxification services in four participating areas. These four areas had an existing similar home detoxification service in place. The four centres were: Bro Taf Community Addiction Unit, Cardiff; Sandwell Community Alcohol Team, Birmingham; Clwyd Community Addictions Unit; and Gwynedd Community Addictions Unit. Referrals to these home detoxification services came from general practitioners, self-referral, social services and voluntary agencies such as local community alcohol teams.

Inclusion/exclusion criteria

All referred patients, who met the clinical criteria for home detoxification, were included in the trial. Exclusion criteria...
were identical to those for existing home detoxification services: previous history of withdrawal fits; epilepsy; very severe physical or psychological disorders; no stable address.

Initial screening assessment
All patients referred to the community units were assessed by the clinical staff for their suitability for home detoxification, based on the above criteria and were asked whether they would agree to participate in the trial.

Informed consent
Informed consent was obtained by the researcher prior to initial assessment.

Research assessment
Either the research staff or the participating Community Psychiatric Nurses (CPNs) administered the research assessment. This assessment was carried out 2–5 days prior to treatment. The assessment battery took ~75 min to complete and was administered on a one-to-one basis in patients’ homes or treatment centres, at their own convenience. Some of the questionnaires were interviewer led and others were self-completed. In order to avoid data contamination, the presence of a significant other was discouraged.

Randomization
On completion of the initial research assessment participants were randomly allocated to one of the two treatment conditions, using a random number table. This was implemented by the project administrator who had no knowledge of, or access to any individual patient information.

Assessment measures
The following measures were chosen in order to reflect the research aims and objectives. (i) Form 90 family of instruments (Miller, 1996); this measure records information on days abstinent, drinks per drinking day (in units, 1 unit = 8 g ethanol), total consumption during the previous 3 months (in units) and other drug use. (ii) Severity of Alcohol Dependence Questionnaire (SADQ) (Stockwell et al., 1979); used to assess the severity of the alcohol dependence syndrome. (iii) Alcohol Problems Questionnaire (APQ) (Drummond, 1990); in order to quantify information on alcohol related problems. (iv) Social Satisfaction Scale (Tober, 2000); to assess levels of dissatisfaction with specific aspects of living. (v) Self Esteem questionnaire (Rosenberg, 1965); a measure commonly used to assess self esteem.

Treatments
Participants in both groups were detoxified using appropriate medication for detoxification which was consistent for all participants. This was dispensed on a daily basis with the dose gradually being reduced over a period of 5–8 days. Participants’ GPs took medical responsibility for the prescribing of the detoxification medication.

Control: treatment as usual (five home visits over a 5–8 day period)
Treatment as usual involved five home visits of 30 min duration by the CPN for administration of the appropriate dose of medication for detoxification. The other aspect of these sessions included developing rapport and providing simple advice, especially regarding withdrawal symptoms and physical discomfort.

The psychological intervention (five home visits over a 5–8 day period)
As well as the administration of the appropriate dose of medication for detoxification, the psychological component was a relatively brief intervention consisting of three main approaches within one 30 min session on each of five home visits. Sessions were scheduled as follows.

Session 1: motivation. The first session focused on motivation and building rapport with the client. Motivation to change was briefly considered by exploring the benefits of change. Reasons for stopping or reducing drinking were discussed with the aim of gently motivating change. This was carried out with empathy, and confrontation was avoided.

Sessions 2 and 3: coping skills. The emphasis in these sessions was upon developing a simple cognitive coping strategy that involved accepting discomfort and bringing to mind reasons to change. These sessions focused on the desensitization of alcohol cues or triggers that may lead to relapse, drink refusal skills and dealing with thoughts about alcohol. The client was encouraged to learn and develop appropriate and relevant coping skills. To help clients with this, a three step coping strategy technique was developed, which they were encouraged to practise regularly, especially when experiencing craving.

Sessions 4 and 5: social support. Therapists were encouraged to be as creative as possible in helping the client to access effective support provided by partners, friends or other family members. Positive social support for abstinence (or sensible drinking in a few cases) was the main focus of these sessions. Increasing social activities could involve local groups, or taking up hobbies or activities that encourage social interaction, which may enable the development of new social networks.

The integrity by which the two forms of treatment were implemented by the therapists was addressed by (i) supervision and training of the therapists: this involved the initial training plus one further visit to the participating centres by the research team in order to resolve any problems or difficulties experienced. (ii) Monitoring through ongoing telephone contact with therapists: the research team maintained regular telephone contact with the participating centres, and CPNs involved were provided with a mobile ‘helpline’ number. (iii) All therapists were supplied with a treatment manual (available from the first author).

Therapists
The control treatment was conducted by CPNs; each CPN carried out both the control and psychological treatments with the exception of one agency. In this agency the psychological treatment was conducted by one of the research psychologists. Therapists all had at least 2 years experience in the alcohol field. All the CPNs were trained in the mental health field and were ‘F’ grade or above.

Follow-up
Follow-up interviews with participants were carried out at 3 months and 12 months post treatment. See Fig. 1 for the research process flow chart.
Statistical analysis

The main statistical analysis used a repeated measures analysis of variance over three occasions of testing (baseline, 3 month follow-up and 12 month follow-up). The interaction effect indicated whether there are differential treatment effects across the three occasions (i.e. control vs psychological intervention). This interaction effect was the main focus of the current study.

For some measures the repeated measures analysis was not possible. This was because the data were nominal or ordinal and therefore alternative non-parametric statistical tests were utilized.

The aim was to test for a medium effect size ($d = 0.6$) with an alpha of 0.05 and power of 0.90.

Ethical approval

Local research ethical committees approved the trial.

RESULTS

Descriptive information

Sample characteristics. Across the four participating centres, 11% of clients were either unsuitable for the trial or refused to participate in the research project. Referrals who were assessed as unsuitable for home detoxification had no adequate support, or had a previous history of withdrawal fits. Ninety-one referrals met the trial inclusion criteria and agreed to participate. Of these, 54 participants were male and 37 were female. The age of the sample ranged from 21 to 77, with the mean age being 43 ($SD = 10.16$).

Group 1 ($n = 45$) received the simple home detoxification (the control group); group 2 ($n = 46$) received the home detoxification treatment programme plus the psychological intervention (the treatment group).

Baseline alcohol related measures

Alcohol consumption. Of the whole sample ($n = 91$), 81 (89%) were assessed as steady drinkers, that is, individuals whose drinking was regular and consistent over the 90 day period prior to baseline assessment (i.e. drinking daily or on most days for the majority of the period). Ten were assessed as binge drinkers, where drinking was episodic with no regular steady pattern. Nevertheless, they had consumed alcohol consistently at high enough levels to suffer from withdrawal symptoms and therefore were considered suitable for detoxification. They were evenly distributed between the two treatment groups.

Consumption measures for steady pattern drinkers. For this group the mean number of days abstinent in the past 90 days was two ($SD = 3.83$). Fifty-four of the 81 (67%) in this category group had no abstinent days in the period prior to assessment and treatment, which demonstrates the dependent nature of the sample. The mean for the units consumed per drinking day was 27.4 ($SD = 10.55$) with the median being 27.

Consumption measures for binge drinkers. For this group the mean number of days abstinent in the past 90 days was 39 ($SD = 12.19$). The mean score for the units consumed per drinking day (drinks per drinking day) was 27.0 ($SD = 10.50$). Although this group are classified as binge drinkers, the figures demonstrate that the amount they consume per day when drinking is similar to that of steady drinkers.

Severity of alcohol dependence. The mean SADQ score was 30.94 ($SD = 12.40$) with a range of 5 to 56 (the maximum score possible is 60). A cut off score of 30 suggests severe dependence. Out of the 91 participants, 72 (79%) scored >30.

Base line differences

Independent $t$-tests showed no significant differences between the groups on any pre-treatment variable.

Follow-up and attrition

Of the 91 participants in the trial, 85 (92%) were successfully followed up at 3 months and 78 (86%) were successfully interviewed at the 12 month follow-up point. Less than 25% of these were not blind. This was due to geographical constraints.

Treatment outcome

Drinks per drinking day. For this measure there was a significant interaction effect for occasion $\times$ group ($P = 0.007$). This was further explored by examining treatment interactions from base line to 3 months and from base line to 12 months. Changes at both 3 months and 12 months were significantly greater for the psychological treatment group than for the control group (baseline to 90 days post treatment, $P = 0.012$; and from baseline to 12 months post treatment, $P = 0.005$). This indicates that the treatment

Fig. 1. Research process flow chart.
group drank significantly fewer units per drinking day than the control group at both the follow-up occasions (see Fig. 2).

**Days abstinent.** This measure refers to the total number of days abstinent for a 90 day period prior to assessment. There was a significant occasion \(\times\) treatment interaction \((P = 0.004)\). The occasion \(\times\) group interaction is shown in Fig. 3. This was further explored by examining treatment changes from baseline to 3 months post treatment \((P = 0.001)\) and from baseline to 12 months post treatment \((P = 0.004)\). The treatment group showed a greater increase in the number of days abstinent (in the previous 90 days prior to assessment) than the control group at both follow-up points.

**Total alcohol units consumed.** This measure refers to the total number of alcohol units consumed over a 90 day period. Results show an interaction effect for occasion \(\times\) group \((P = 0.002)\). Changes at both the 3 month and 12 month follow-up occasions were significantly greater for the psychological treatment group than for the control (3 months, \(P = 0.005\); 12 months, \(P = 0.002\)).

**Time to first drink following treatment.** For the treatment group this was 114 days compared to 52 days for the control group \((P = 0.011)\).

**Alcohol related problems.** This was assessed at two time points: baseline and at 12 months post treatment. The repeated measures analyses showed an interaction effect for occasion \(\times\) group \((P = 0.048)\). This interaction indicates that the reduction in problems at the 12 month follow-up was significantly greater for the psychological treatment group than for the control group.

Social satisfaction. This was assessed over three time points: baseline, 3 and 12 month follow-up post-treatment. There was a significant interaction effect for occasion \(\times\) group \((P = 0.020)\).

Self-esteem. Repeated measures analyses showed a nearly significant interaction effect for occasion \(\times\) group \((0.061)\), which would be significant on a one tailed test.

**Abstinence or moderate drinking at 3 month and 12 month follow-up.** Table 1 illustrates that at the 3 month follow-up, 25 of the 43 participants in the treatment group were abstinent or drinking <3 units a day, compared with 10 of the 42 in the control group. These results show a significant treatment effect \((\chi^2\text{-square} 10.34, P = 0.01)\).

Table 2 illustrates that at the 12 month follow-up, only three participants in the control group from a total of 40 were abstinent or drinking <3 units a day. In the treatment group, 15 of 38 who were followed up were abstinent or drinking <3 units a day. These results show a significant treatment effect \((\chi^2\text{-square} = 11.22, P = 0.001)\).

**Severity of dependence.** This outcome measure was assessed at two time points: baseline (pre-treatment) and at 12 months post treatment. There was no significant interaction effect for this measure.

**Missing data**

There was no difference at either the 3 month follow-up point in the proportion successfully followed (control group \(n = 42\); psychological intervention group \(n = 43\)), nor at the 12 month follow-up point (control group \(n = 40\); psychological intervention group \(n = 38\)). However, as a check on the effect of differential drop-out, the analyses displayed in Tables 1 and 2 were repeated with the assumption that all the participants with missing data did badly at 12 month follow-up. This made no difference to the main findings.

**Cost analysis**

The cost of providing both control and treatment detoxification programmes is relatively inexpensive compared to other detoxification programmes (see Table 3). Both detoxification programmes in this study amounted to five visits (over a 5–8 day period) of 30 min duration. The costs of implementing the psychological intervention were relatively small. As there was already an existing home detoxification service providing a simple medical detoxification, the only additional costs were

![Drinks per drinking day](image1)

**Fig. 2.** The number of drinks per drinking day.

![Days abstinent](image2)

**Fig. 3.** The number of days abstinent.

<table>
<thead>
<tr>
<th>Drinking outcome</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstinent or drinking ≤3 units a day</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Drinking &gt;3 units a day</td>
<td>25</td>
<td>18</td>
</tr>
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</table>

**Table 1. Number of participants abstinent or drinking ≤3 units a day at 3 month follow-up**

<table>
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<tr>
<th>Drinking outcome</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstinent or drinking &lt;3 units a day</td>
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<td>3</td>
</tr>
<tr>
<td>Drinking &gt;3 units a day</td>
<td>36</td>
<td>5</td>
</tr>
</tbody>
</table>

**Table 2. Number of participants abstinent or drinking <3 units a day at the 12 month follow-up**
the training of the CPNs on how to implement the intervention. The hourly rate for a home visit by a CPN is £77 (Netten et al., 2001). The cost per participant amounts to £175, plus the costs of the medication used in the detoxification (for both groups), which was only a few pence (BNF, 2001).

At 12 months, the percentage of patients abstinent or drinking $\leq$ 3 units per drinking day on average was 39.47% in the intervention group and 7.5% in the control group (a difference of 31.97%). In other words, for every 100 patients treated with the psychological package, 32 extra patients will be in remission 1 year later compared to treatment as usual.

The Number Needed to Treat (NNT) to produce one extra non-hazardous drinker is therefore 3.13 (100/31.97). This means that just over three patients have to receive the psychological intervention in order for one extra to be in remission.

It is therefore reasonable to assume that the psychological programme, as part of a home detoxification service, results in cost savings to the NHS and may well generate additional benefits in terms of a larger number of days abstinent and reduced alcohol-related problems than the home detoxification programme on its own.

**Therapist profession and outcome**

One of the unavoidable methodological idiosyncrasies of this trial resulted from constraints on nurse time in one district. Two research psychologists carried out the psychological intervention in this district. They gave this intervention to 28 clients. In the other four districts, Community Psychiatric Nurses gave the psychological intervention to 28 clients. In a repeated measures analysis of variance the interaction (occasions x treatment x profession) did not approach significance ($F = 0.343; df = 2; P = 0.71$). An inspection of the data confirmed that there were no signs of differences in treatment outcomes when given by psychologists or by CPNs.

**Differences in outcome between participating centres**

A repeated measures analysis was performed to assess outcome x group x centre. The results showed that centre made no significant differences to treatment outcome.

**DISCUSSION**

There were substantial improvements on outcome measures for both the control group and the treatment group, indicating that the simple medical detoxification by itself appears to be effective. Overall, however, there were significant improvements for the psychological treatment group over and above the control group. It can therefore be concluded that the results of the current study support the evidence from the literature that brief psychological interventions are effective. The psychological intervention in the current study differed from other brief interventions, reported by Bien et al. (1993), in that this intervention used a broad treatment strategy that included evidence-based key components from effective treatment approaches (motivation, cognitive behavioural coping strategies and enhancement of social support). Although the psychological intervention employed was relatively brief (five half-hour sessions implemented over a 5–8 day period), the results are impressive. Importantly, the positive changes reported by the treatment group continued up to the 12 month follow-up period. Given that waiting lists for in-patient detoxification treatment are lengthy and treatment cost is high, home detoxification treatments seem to be the sensible alternative. Stockwell (1991) suggested that, ‘the service [home detoxification] creates more demand and reaches more problem drinkers than does hospital care.’ The costs of implementing the psychological intervention were relatively small, the only additional costs being the training of the CPNs on how to implement the intervention. The results from the current study show that home detoxification is one ninth of the cost of inpatient detoxification. These figures compare favourably to the findings of others investigating cost effectiveness of home detoxification treatments (Bartu and Saunders, 1994; Freeman, 1997; Allan et al., 2000). However, the results show that by combining the brief psychological treatment with the simple medical detoxification in this study, cost-benefits are wide ranging.

**Clinical implications**

Teams of CPNs working in three of the four areas, and a psychologist working in the other, led to an opportunity to investigate whether there were any differences in treatment outcome between the four centres. The results show that there were no differences. Thus, the results could be generalized to other home detoxification services that have the same clinical criteria and detoxification treatment process. This was a pragmatic study and the results appear to demonstrate that the nurses involved have been able to incorporate the psychological intervention very effectively into their existing treatment approach.

**Critical appraisal of the current study**

A number of limitations of this study need to be addressed.

(i) There is no objective confirmation of subjective outcome measures (for example, collateral information or liver function tests); a lack of funding precluded this. However, a great deal of...
research indicates that subjective measures are accurate and valid (Sobell et al., 1980). The Project MATCH Team (Babor et al., 2001), compared self reported consumption to biochemical measures and concluded that self-report measures were accurate enough to warrant routine use. Furthermore, any lack of reliability in self reported measures would be unlikely to account for between group differences in the current study.

(ii) In the current study the implementation of the psychological intervention was not audited with the use of audio or video tapes. However, poor implementation would not explain why the psychological intervention produced a differential treatment effect.

(iii) Due to economical and geographical constraints, some of the assessors at follow-up were not blind to treatment groups. However significant interaction effects were obtained for patient self-completion measures (social satisfaction and alcohol-related problems). Furthermore, therapists and clients would not have had a vested interest in ‘faking good’ in favour of the psychological intervention. If at all, therapists would have been expected to be biased in favour of the detoxification process that they were used to.

(iv) This was a pragmatic trial and the use of psychologists to implement the therapy in one participating district added to the complexity. However, there were no differences between outcomes for psychologists and CPNs. In fact, what appeared to be a methodological problem turned out to be a strength, since it demonstrated that this manual-driven intervention does not appear to require a particular professional training.

CONCLUSIONS

It can be concluded that home detoxification is safe and effective, not only for those with less severe or moderate dependence, but also for those who are more severely dependent. Adding a psychological intervention to a home detoxification programme has been shown to be both successful and also cost-effective, in that the psychological treatment can be easily incorporated into existing services with little or no cost implications for the service provider. Indeed, the current study has demonstrated significant reductions in consumption levels and alcohol related problems, and positive changes in social satisfaction and abstinent days. This substantially increases the success of a home detoxification programme, with obvious cost benefits in further reducing future rates of hazardous and harmful drinking and the ensuing costs of these.

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