

Effectiveness of treatment for alcohol problems: findings of the randomised UK alcohol treatment trial (UKATT)

UKATT Research Team

Abstract

Objective To compare the effectiveness of social behaviour and network therapy, a new treatment for alcohol problems, with that of the proved motivational enhancement therapy.

Design Pragmatic randomised trial.

Setting Seven treatment sites around Birmingham, Cardiff, and Leeds.

Participants 742 clients with alcohol problems; 689 (93.0%) were interviewed at three months and 617 (83.2%) at 12 months.

Interventions Social behaviour and network therapy and motivational enhancement therapy.

Main outcome measures Changes in alcohol consumption, alcohol dependence, and alcohol related problems over 12 months.

Results Both groups reported substantial reductions in alcohol consumption, dependence, and problems and better mental health related quality of life over 12 months. Between groups we found only one significant difference in outcome, probably due to chance: the social network group showed significantly better physical health at three months. Non-significant differences at 12 months in the motivational group relative to the social network group included: the number of drinks consumed per drinking day had decreased by an extra 1.1 (95% confidence interval - 1.0 to 3.2); scores on the Leeds dependence questionnaire had improved by an extra 0.6 (-0.7 to 2.0); scores on the alcohol problems questionnaire had improved by an extra 0.5 (-0.4 to 1.4); but the number of days abstinent from drinking had increased by 1.2% less (-4.5% to 6.9%).

Conclusion The novel social behaviour and network therapy for alcohol problems did not differ significantly in effectiveness from the proved motivational enhancement therapy.

Introduction

In 2000 the estimated prevalence of alcohol dependence in the United Kingdom was 11.9% among men and 2.9% among women.¹ The public costs of heavy drinking in England and Wales are about £18 000m (\$32 438m; €26 424m).²

No British randomised trial of non-pharmacological treatments for alcohol problems has had the statistical power to detect even medium sized

effects.³ To our knowledge only one randomised trial of psychosocial treatments for alcohol problems has been able to detect small effects, by studying 1726 clients in nine treatment sites across the United States.⁴ Clients were randomly allocated to three manual based interventions—namely, cognitive behavioural therapy, twelve step facilitation therapy, and motivational enhancement therapy. Motivational enhancement therapy achieved outcomes essentially similar to those of the two more intensive treatments.^{4,5}

This evidence and the increasing popularity of motivational enhancement therapy led to the proposal that this therapy should act as standard treatment in research on the effectiveness of treatment for alcohol problems.⁶ We proposed that motivational enhancement therapy should act as reference treatment within our trial, the UK alcohol treatment trial.⁷ We compared a novel social treatment with a strong theoretical and empirical basis⁸ with an established but briefer motivational treatment of proved effectiveness.

Methods

We carried out a pragmatic randomised trial in seven UK sites around Birmingham, Cardiff, and Leeds to test two main null hypotheses⁷ that socially based treatment (social behaviour and network therapy) and briefer, motivationally based treatment (motivational enhancement therapy) are equally effective and equally cost effective, notably in improving clients' quality of life (see accompanying economic paper⁹).

The sites nominated 76 candidates to train as therapists for the trial. We randomly assigned roughly twice as many therapists to the social behaviour and network therapy as to motivational enhancement therapy because social therapy takes about twice as much therapist time as motivational therapy. We trained 72 of the candidates in their allocated treatments. To achieve accreditation, the trainees had to complete the supervised treatment of one or two clients and show competence through video recordings. The 52 therapists who achieved this continued to record treatment sessions on video and to receive

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Table 1 Mean (95% confidence intervals) adjusted scores for primary and secondary outcomes across social behaviour group and motivational group combined at baseline and three and 12 months

Outcome measures	Baseline (n=742)	3 months (n=689)	12 months (n=617)
Days abstinent (%)	29.5 (26.1 to 32.9)	42.7 (38.2 to 47.2)	46.0 (40.8 to 51.2)
No of drinks* per drinking day	26.8 (24.9 to 28.7)	17.9 (16.3 to 19.5)	19.2 (17.2 to 21.2)
Log γ -glutamyl transferase	4.01 (3.86 to 4.16)	3.89 (3.77 to 4.01)	4.00 (3.83 to 4.17)
Leeds dependence questionnaire	17.0 (15.9 to 18.1)	11.9 (10.8 to 13.0)	10.9 (9.6 to 12.2)
Alcohol problems questionnaire†	12.3 (11.7 to 12.9)	6.8 (6.1 to 7.5)	6.1 (5.3 to 7.0)
EuroQol (EQ-5D)	0.574 (0.534 to 0.614)	0.629 (0.592 to 0.666)	0.607 (0.562 to 0.652)
General health questionnaire 28 SF-36:	40.0 (37.6 to 42.4)	31.2 (28.7 to 33.7)	29.9 (27.0 to 32.8)
Mental component	29.7 (28.0 to 31.4)	36.6 (34.6 to 38.6)	38.7 (36.5 to 40.9)
Physical component	45.4 (44.0 to 46.8)	48.0 (46.8 to 49.2)	47.6 (46.2 to 49.0)

Adjusted by analysis of covariance for centre, use of detoxification, and three goals reported at randomisation (to abstain, to abstain through disulfiram, and to use acamprosate); and corresponding baseline score for outcomes at 3 and 12 months.

*Units of alcohol, equivalent to 8 g of ethanol.

†Common items.

supervision to encourage compliance with their allocated manual.

In our trial, social behaviour and network therapy comprised eight 50 minute sessions over eight to 12 weeks and motivational enhancement therapy comprised three 50 minute sessions over eight to 12 weeks.⁷ Motivational therapy combined counselling in the motivational style¹⁰ with objective feedback.¹¹ Unlike the US study, we offered three sessions rather than four and we allowed “significant others” to attend the first session and to provide only confirmatory information.

We included clients who would normally receive an offer of treatment from British sites for alcohol problems.⁷ We excluded people aged under 16; people who were illiterate, could not name a contact, or intended to leave the area; people with uncontrolled psychotic illness or severe cognitive impairment; people for whom alcohol was not the main problem; and people who were receiving treatment for an alcohol problem.

Clinical staff screened clients for eligibility. The remote randomisation service at York used a computer “on line” to allocate participants between therapy groups, stratified by site. Treatment was concealed until allocation.

Researchers interviewed participants at home three and 12 months after entry to the trial, regardless

of whether treatment was completed. At 12 months we employed a new team of interviewers to ensure that they were blind to treatment allocation.

Outcome measures

Primary outcome measures were alcohol consumption (form 90), summarised by number of drinks per drinking day and percentage of days abstinent⁴; alcohol dependence (Leeds dependence questionnaire); alcohol related problems over the past three months (alcohol problems questionnaire); and γ -glutamyl transferase, a test of liver function.

Secondary outcome measures were associated with health related quality of life: the EQ-5D, a health status index; the SF-36, a health profile; and the general health questionnaire 28, which measures psychological disturbance.

Statistical analysis

In accordance with our prespecified analysis plan we used analysis of covariance to take account of site, use of detoxification, and drinking goal as reported at randomisation and to adjust for differences between group in scores before randomisation. We analysed data by intention to treat. To assess whether attrition affected findings, we undertook sensitivity analysis using the last recorded response from each respondent.

Results

Between 1999 and 2001 we recruited 742 participants with alcohol problems (see bmj.com). Although only 211 (28.4%) received detoxification between screening and recruitment, others had done so before screening, when levels of dependency were higher. We interviewed 689 (93.0%) participants at three months and 617 (83.2%) at 12 months (table 1).

Analysis of covariance showed that the therapy groups achieved similar outcomes at three and 12 months (table 2). As attrition was only 7% at three months and 17% at 12 months, sensitivity analysis using the last observation carried forward generated similar findings. The only significant difference we found was that after three months the adjusted mean physical component score of the SF-36 for clients in the social network group exceeded that of the clients in

Table 2 Mean (SE) adjusted scores for primary and secondary outcomes by allocated treatment at three and 12 months

Outcomes measures	3 months			12 months		
	Motivational group	Social network group	Difference in favour of social group (95% CI)	Motivational group	Social network group	Difference in favour of social group (95% CI)
Days abstinent (%)	42.3 (2.56) (n=393)	43.2 (2.63) (n=293)	0.90 (-3.98 to 5.78)	45.4 (2.98) (n=351)	46.6 (3.06) (n=261)	1.19 (-4.50 to 6.88)
No of drinks per drinking day	17.6 (0.89) (n=361)	18.2 (0.92) (n=263)	-0.53 (-2.22 to 1.17)	18.7 (1.11) (n=303)	19.8 (1.15) (n=217)	-1.14 (-3.22 to 0.95)
Log γ -glutamyl transferase	3.87 (0.070) (n=331)	3.90 (0.070) (n=259)	-0.033 (-0.163 to 0.097)	4.01 (0.0941) (n=293)	4.00 (0.0992) (n=214)	0.010 (-0.170 to 0.189)
Leeds dependence questionnaire (0-30, 0=best)	12.0 (0.65) (n=367)	11.8 (0.67) (n=275)	0.24 (-0.99 to 1.46)	10.6 (0.728) (n=332)	11.2 (0.766) (n=231)	-0.64 (-2.02 to 0.74)
Alcohol problems questionnaire (0-23, 0=best)	6.85 (0.41) (n=371)	6.79 (0.42) (n=280)	0.06 (-0.71 to 0.83)	5.90 (0.467) (n=326)	6.38 (0.489) (n=233)	-0.48 (-1.36 to 0.40)
EQ-5D (<0 to 1, 1=best)	0.631 (0.021) (n=359)	0.626 (0.022) (n=272)	-0.005 (-0.045 to 0.035)	0.623 (0.025) (n=317)	0.592 (0.026) (n=230)	-0.031 (-0.079 to 0.016)
General health questionnaire 28 (0-84, 0=best)	31.6 (1.43) (n=364)	30.9 (1.47) (n=274)	0.71 (-1.98 to 3.40)	28.6 (1.63) (n=324)	31.2 (1.72) (n=234)	-2.64 (-5.73 to 0.44)
SF-36 (mean 50, SD 10, higher=better):						
Mental component	36.9 (1.11) (n=341)	36.3 (1.12) (n=263)	-0.56 (-2.63 to 1.50)	39.5 (1.26) (n=299)	37.9 (1.30) (n=221)	-1.56 (-3.88 to 0.76)
Physical component	47.3 (0.68) (n=341)	48.6 (0.69) (n=263)	1.31 (0.05 to 2.57)	47.2 (0.80) (n=299)	47.9 (0.82) (n=221)	0.68 (-0.79 to 2.16)

Adjusted by analysis of covariance for corresponding baseline score, centre, use of detoxification, three goals reported at randomisation (to abstain, to abstain through disulfiram, and to use acamprosate).

the motivational group by 1.31 (95% confidence interval 0.05 to 2.57). As both mean scores were close to those at baseline (table 1), and because we invoked 18 distinct significance tests (table 2), it would be prudent to regard this as a possible random consequence of multiple comparisons.

To explore these findings further, we compared the mean adjusted scores at baseline and after three and 12 months for all who responded (table 1). At three months we found highly significant improvements in all patient outcomes except the EQ-5D and log γ -glutamyl transferase. The adjusted proportion of days on which clients reported that they had abstained improved from 29% to 43% at three months and to 46% at 12 months. Mean adjusted alcohol consumption reported by continuing drinkers fell from 27 drinks per drinking day to 18 at three months and 19 at 12 months. Reported mean adjusted scores on the Leeds dependence questionnaire fell from 17 to 12 at three months and to 11 at 12 months. Reported mean adjusted scores on the alcohol problem questionnaire fell from 12 to 7 at three months and to 6 at 12 months. Reported mental health also improved: the mean adjusted score of the mental component of the SF-36 rose from 30 to 37 at three months and to 39 at 12 months.

Discussion

Social behaviour and network therapy (a novel treatment for alcohol problems) and motivational enhancement therapy (a treatment of proved effectiveness), led to similar improvements in reported alcohol consumption, dependence, and problems, and in mental health, all of which were maintained over 12 months. Clients in both groups reported that total alcohol consumption had decreased by 48% at three months and by 45% at 12 months and that alcohol related problems had decreased by 44% at three months and by 50% at 12 months.

By recruiting more than 700 participants, our trial had power to detect small differences. Our trial was pragmatic in that it compared the effectiveness of treatments under routine conditions rather than their efficacy under controlled conditions. Internal validity was protected by randomising therapists between therapies, randomising clients remotely, and keeping interviewers blind to treatment at 12 months.⁷ Since we treated motivational enhancement therapy as a reference treatment of proved effectiveness, we infer that social behaviour and network therapy is equally effective.

The intrinsic effects of the therapies may, however, be less than those reported. By rigorously protecting internal validity we may have reduced external validity. Some improvements may have been the result of regression to the mean or response bias. Finally, log γ -glutamyl transferase, a test correlated with alcohol consumption, changed little over 12 months. However, this test adds little to careful history taking in clinical practice,¹² and little to self report in clinical trials.¹³

There are three other reasons for believing that the intrinsic effects of both therapies are real and sustained. Firstly, our participants consistently reported substantial reductions in alcohol consumption and consequent problems lasting at least 12

What is already known on this topic

Psychosocial treatment is generally effective for alcohol dependence and misuse

A multicentre trial and meta-analyses showed that motivational enhancement therapy, a brief psychosocial treatment, is effective

Systematic reviews have shown that some treatments involving members of the patient's social network are also effective

What this study adds

Social behaviour and network therapy did not differ in effectiveness from motivational enhancement therapy

Both therapy groups reported substantial reductions in drinking and associated problems and improved mental health

months. Secondly, natural recovery from alcohol problems does occur but comparisons of treated and untreated samples imply that alcohol dependent individuals benefit from treatment.¹⁴ Furthermore, evidence shows that it is the intrinsic effect of motivational enhancement therapy rather than the non-specific effect of intervening that is responsible for its benefits.¹⁵

We can identify two main reasons why we found little difference between the therapies. Firstly, the evidence for the validity of self reports^{12 13} and the evidence from outside our trial for the effectiveness of motivational enhancement therapy^{5 6 14 15 16} strongly suggest that both therapies are effective. Secondly, both therapies add three common elements to the treatment process: a structured, published manual based on available scientific evidence; training of therapists at the Leeds Addiction Unit in a professional and rigorous atmosphere; and regular supervision of the therapists by separate teachers with considerable experience of treatment for alcohol problems.

In a separate economic paper we investigate the cost effectiveness of the therapies.⁹ Both social behaviour and network therapy and motivational enhancement therapy proved acceptable to clients, managers, and more than 50 therapists allocated between them at random. More importantly, our participants reported that the therapies were equally effective in reducing drinking and associated problems and in improving mental health.

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Abstract

Objective To compare the cost effectiveness of social behaviour and network therapy (a new social treatment for alcohol problems) with that of the proved motivational enhancement therapy.

Design Cost effectiveness analysis alongside a pragmatic randomised trial.

Setting Seven treatment sites around Birmingham, Cardiff, and Leeds.

Participants 742 clients with alcohol problems; 617 (83.2%) were interviewed at 12 months and full economic data were obtained on 608 (98.5% of 617).

Main economic measures Quality adjusted life years (QALYs), costs of trial treatments, and consequences for public sector resources (health care, other alcohol treatment, social services, and criminal justice services).

Results Both therapies saved about five times as much in expenditure on health, social, and criminal justice services as they cost. Neither net savings nor cost effectiveness differed significantly between the therapies, despite the average cost of social behaviour and network therapy (£221; \$385; €320) being significantly more than that of motivational enhancement therapy (£129). If a QALY were worth £30 000, then the motivational therapy would have 58% chance of being more cost effective than the social network therapy, and social network therapy would have 42% chance of being more cost effective than the motivational therapy.

Conclusion Trial participants reported highly significant reductions in drinking and associated problems and costs. The novel social behaviour and network therapy did not differ significantly in cost effectiveness from the proved motivational enhancement therapy.

Introduction

Reviews of economic analyses of treatment for alcohol and other substance misuse have consistently found that health and other social costs decrease after treatment but have also identified methodological weaknesses.¹ Modelling of economic costs and consequences suggests that brief motivational interviewing, which includes motivational enhancement therapy, is more cost effective than many other types of treatment for alcohol problems.² A large randomised trial of alcohol treatments in the United States (the "matching alcoholism treatments to client heterogeneity" trial), generated two economic analyses on completion.^{3,4} The first study modelled the costs of treatment from data on the uptake of therapies and calculated that motivational enhancement therapy would be less costly than cognitive behavioural therapy or twelve step facilitation in non-research settings.³ The second study analysed the health records of participants and concluded that healthcare costs decreased after treatment.⁴

The UK alcohol treatment trial provided an opportunity to collect economic data alongside a large randomised trial. We designed the economic analysis to test whether social behaviour and network therapy, a new social treatment, was as cost effective in improving quality of life as motivational enhancement therapy, a treatment of proved effectiveness. We compared the treatment costs, consequences for public sector resources, and health outcomes of the two therapies.

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Full authorship details, the collaborators, and a detailed table of resources and costs are on bmj.com



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