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ACUPUNCTURE OR COUNSELLING: OUTCOMES AND PREDICTORS OF TREATMENT CHOICE IN A NON-STATUTORY ADDICTION SERVICE

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Abbreviated title: Acupuncture or counselling in substance dependence

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Abstract

Aims. To describe the characteristics of clients choosing auricular acupuncture or counselling to treat dependence at a U.K. self-referral centre and the short-term outcome for each group.

Methods. Assessments made at entry, and at 2 months and 6 months included a range of psychometric variables (anxiety, depression, dependence severity, readiness to change) and alcohol and drug consumption. These variables were used to predict treatment choice in logistic regression analyses and to describe treatment outcome.

Results. Of 162 clients, 36 chose acupuncture and 126 chose counselling. Alcohol was the main preferred drug in both groups but preference for heroin was the only independent variable determining choice for acupuncture vs. counselling. Six-month follow-up rate was 44% in the counselling group and 25% in the acupuncture group. There were significant improvements in psychological variables which correlated with a decrease in alcohol consumption at 2 and 6 months. Improvements were greatest in those who attended for 6 months.

Conclusions. Acupuncture was preferred by clients whose main drug of choice was heroin. Across both treatments, clients with alcohol problems who attended the 2 and 6 months follow-up assessments showed a significant decrease in psychological distress and reduction of alcohol consumption.

Key words: Auricular acupuncture, counselling, alcohol dependence, drug dependence.

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Background

The scale of alcohol and drug addiction in the UK is of concern, affecting a considerable proportion of the population. The traditional medical treatment, detoxification, has limited long-term effectiveness and high relapse and dropout rates (~60%) after one year (Bottlender & Soyka, 2005; Mueller et al., 2007; Lock et al. 2006; Luty, 2003). Psychological treatments, such as counselling, are prolonged and require large resources. Thus there has been an intensive search for effective brief therapies for addiction.

The North East Council on Addictions (NECA), a Registered Charity, is the main provider of drug and alcohol services in the North East of England. NECA principally offers free individual counselling for self-referred clients with dependency issues including alcohol, illicit drugs, solvents, nicotine and gambling in partnership with GAM Care. Recently NECA has added a number of alternative approaches including aromatherapy, reflexology, body and head massage, electrostimulation therapy, various relaxation techniques and auricular acupuncture. These additional free services are popular with clients and appear to contribute to overall success.

We investigated the characteristics of clients who chose either auricular acupuncture or counselling for their alcohol or drug problems and the short-term outcome of these treatments.

Methods

The study was conducted at one open access centre in central Newcastle which offered the full range of NECA services. Ethical approval was obtained from the Joint Ethics Committee (Newcastle and North Tyneside Health Authority, University of Newcastle upon Tyne, and Northumbria University).

Subjects The subjects consisted of 162 clients of both sexes, aged 18-65 years, and were recruited consecutively from those who self-referred for help with alcohol or drug-related problems. All subjects who wished to participate were accepted into the study; there were no exclusion criteria. After standardised initial assessment using the NECA Client Database which documents socio-demographic variables and drug dependency issues, clients were given a choice of either counselling or acupuncture as their preferred treatment. Full explanation of each intervention was given verbally and in writing and written consent to participate was obtained. Subjects were told that they were free to drop out of the study or change treatments at any time. They were free to use other complementary therapies including aromatherapy, reflexology, massage and relaxation techniques along with their chosen main treatment, counselling or acupuncture.

Interventions Counselling consisted of 12 weekly sessions delivered by trained counsellors using a range of solution-focussed techniques tailored to the client's individual needs. It could include cognitive-behavioural techniques, alternate therapies and educational strategies with the aim of empowering clients through helping them to understand themselves and the effects of substance use on their health, relationships and families. Such treatment would be regarded as standard for this client group.

Auricular acupuncture consisted of an initial week of four sessions lasting 45 minutes in groups of 3-4 clients, followed by once-weekly group sessions for the next 11 weeks. The treatment was delivered by a fully trained therapist using five auricular sites in both ears (sympathetic, upper lung, lower lung, shen men, and kidney). The needles were left *in situ* during the whole session during which the recipients sat quietly without other interventions. The acupuncturists received training from the Durham Prison Service where the procedure has been formally adopted and delivered as a standard treatment.

Assessments **Patients were assessed clinically by an experienced psychiatrist (AN). The Addiction Severity Index (ASI) (McLellan et al. 1992) and the Leeds Dependency Questionaire (LDQ)(Raistrick et al., 1994) were completed subsequently. An estimate of current consumption and expenditure on drugs and alcohol was made following completion of the ASI and LDQ. Alcohol use was recorded in standard units. In the absence of standard measures for street drugs the units in common usage was recorded, for example "bags of heroin". Heavy heroin usage was taken to be more than five bags per week.** The distribution of subjects income was markedly positively skewed and was subjected to log transformation for statistical analysis.

The Readiness to Change Ladder scaled from 0 = "no thought of cutting down" to 10 = "taking action to cut down amount of alcohol/drug" (Biener and Adams, 1991) was completed.

Psychological problems were quantified using the Beck Depression Inventory (BDI) (Beck et al. 1961), Hospital Anxiety Depression Scale (HAD) (Zigmond & Snaith 1983), and the Clinical Global Impression (CGI) (Guy 1976) Assessments were made on entry, and at 2 and 6 months. Strenuous efforts were made to follow up all participants, including the use of a contact tracer, before they were deemed to be non-completers. A futher effort was made to contact all subjects at 6 months, the end of the study

Results

Sample characteristics

The sample at initial assessment consisted of 162 clients of whom 36 (22.2%) chose acupuncture and 126 (77.8%) chose counselling. Socio-demographic variables are shown in Table 1. The groups were well-matched on most variables except that the acupuncture group had a lower mean income, fewer subjects in full-time employment, and more with previous legal problems than those in the counselling group. These differences were significant ($p<0.01$) for the latter two variables.

[Table 1 here]

Drug use

Table 2 shows main drug preferences in the sample. The main preferred drug was alcohol in both groups, 55.6% and 77.8% for acupuncture and counselling respectively, but 33.4% of the acupuncture group used heroin or methadone compared with 11.2% of the counselling group. Cannabis was the second preference for 33 (20.4%) of the subjects, while 11 (6.8%) nominated cocaine, 7 (4.3%) nominated methadone and the remaining 52 (32.1%) nominated some other substance.

[Table 2 here]

Table 3 shows drug use variables. Although alcohol was the main preferred drug in both groups, significantly fewer (55.6%) nominated alcohol in the acupuncture group compared with the counselling group dispite similar weekly alcohol consumption. The main drug preference for heroin in the acupuncture group (30.6%) was significantly greater than in the counselling group (9.6%; $p<0.01$). Heavy heroin use (defined as more than 5 bags per week) was reported by 27.3% in the acupuncture group and none in the counselling group. Financial expenditure on opiates was

not significantly different between groups. The mean expenditure on drugs in the acupuncture

group (£615/month) was greater than their reported mean income (£613/month; Table 1).

[Table 3 here]

Over 79% of the total sample reported psychiatric problems with no significant difference

between groups. Problems reported were: anxiety (2.6%), depression (43.2%), panic attacks

(1.9%), combinations of depression, anxiety or panic attacks (27.7%), feeling suicidal in the past

month (1.3%). Prescribed medication was being used by 29.7% of the subjects, with no difference

between groups.

Prediction of treatment choice

A logistic regression analysis (LRA) was run to identify predictors of the choice of

acupuncture versus counselling from variables measured at initial assessment. The candidates for

these predictor variables were those that resulted in a probability of ≤0.01 in univariate

comparisons between the groups and which applied to the whole initial sample. These variables

included: Legal status (no previous contact with police-judiciary versus some contact); Employment

status (full-time employment versus other); Main preference for alcohol (alcohol main preferred

substance versus all other main preferences); and Main preference for heroin (heroin main preferred

drug versus all other main preferences).

These variables were entered in a series of LRA models based on both forward stepwise and

backward stepwise models. Irrespective of the model used, "Main preference for heroin" emerged

as the only independent predictor of choice of acupuncture versus counselling, with those clients

preferring heroin as their main drug being over four times more likely to choose acupuncture. It

should be noted in particular that, although main preference for alcohol versus other drugs was

significantly different between the two choice of therapy groups in a univariate analysis (Table 3), when main preference for heroin was taken into account in an LRA, main preference for alcohol was no longer significantly associated with therapy choice. Thus main preference for heroin was the only independent variable in determining whether a client chose acupuncture or counselling.

Outcome of treatment

Table 4 shows the psychometric test results at initial assessment and at follow-ups. The follow-up rates at 2 months and 6 months were 61% and 40% respectively despite intensive follow-up procedures including the use of a contact-tracer. At two months the follow-up rate in the counselling and acupuncture groups were 64% and 53%; by 6 months the difference in follow-up rates between the acupuncture (25%) and the counselling group (44%) was significant (Fisher's Exact Test, p=0.021).

Psychometric test results.

Five outcome variables were analysed. Highly significant improvements were noted in all indices in both groups. At 2 months there were significant reductions in the overall groups for CGI (p<0.001), BDI (p<0.002), ASI (p<0.002), Anxiety (p<0.008), LDQ (p<0.022). These continued in both groups regardless of the treatment received (for all four measures, p<0.001).

[Table 4 here]

Drug/alcohol consumption

Among the total group who nominated alcohol as their main preferred drug and who supplied data on both follow-up occasions, there was a highly significant decrease in mean alcohol consumption between initial assessment and two month follow-up from 123.9 (s.d. 69.9) units/week (n=115) down to 86.8 (s.d. 69.5) units/week (n=72, t=5.66, df=71, p<0.001) and between initial

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assessment and six month follow-up, when reported alcohol consumption fell to 43.0 units/week (n=47, t=7.62, df=46, p<0.001). There were also highly significant correlations between decreases in alcohol consumption and improvements in psychological variables at two months follow-up (LDQ, p<0.001, BDI, p<0.001; ASI, p<0.005, CGI, p<0.001). Similar correlations were seen at six months follow-up. These results indicate that the greater the reduction in alcohol consumption, the greater the tendency for improvement in levels of dependence, depression and other measures of clinical outcome.

For the eleven clients who nominated heroin as their main preferred drug and who were successfully followed up for two months, only four clients decreased their heroin consumption, six stayed on the same amount and one increased consumption, a non-significant change. At six months, follow-up data were only available for five clients, precluding any meaningful analysis.

Characteristics of completers and dropouts

Comparisons were made on psychometric variables and alcohol consumption at the initial assessment between subjects who attended the 6 month follow-up (completers) and those who dropped out before 6 months (non-completers). Table 5 shows that, compared with completers, the non-completers recorded a greater degree of drug dependence with significantly higher scores on both the ASI (p=0.014) and the LDQ p=0.003). Non-completers scored significantly higher than completers on the CGI (p=0.029). There were no differences at initial assessment in anxiety scores, depression, readiness to change or weekly alcohol consumption between completers and non-completers. The dropouts were those with more severe addiction problems but with somewhat less severe global clinical impairment.

[Table 5 here]

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Clinical Improvement in Completers

Comparing the psychometric test results of the completers with their initial performance, Table 6 shows that subjects who attended the 6 months follow-up (completers) recorded highly significant improvements in psychometric test results (…) and in reduction of alcohol consumption (…….).

[Table 6 here]

<u>Discussion</u>

The main differences between the treatment groups were that, compared to the counselling group, the acupuncture group included significantly fewer clients in full-time employment, more clients with previous legal problems (Table 1), and more stating heroin as their preferred drug, and reporting heavy heroin use (Table 3). Logistic regression analysis showed that preference for heroin was the only distinguishing variable between groups, with clients reporting heroin as their main drug being over four times more likely to choose acupuncture than those with other drug preferences. One reason for this difference may be that clients taking opiates are unwilling to discuss their (illegal) drug use with a counsellor. They may also regard their problem as a physical condition (addiction) requiring physical treatment and may be more tolerant of the use of needles. It was notable that monthly expenditure on drugs (Table 3) exceeded reported monthly income (Table 1) in the acupuncture group but not in the counselling group. Many of the clients (103 of the 162) were polydrug users with 20.4% naming cannabis as their second drug preference, 6.8% nominating cocaine, 4.3% nominating methadone and 32.1% nominating some other substance.

An important finding of this study were the highly significant improvements in psychometric measures at 2 months and 6 months (Table 4) which correlated with the decrease in alcohol consumption in the total group irrespective of the treatment chosen. These changes were most evident in the 40% of clients who attended the 6-month follow-up (completers) (Table 6), but still clearly seen in those who discontinued treatment after two months. There was no control group but the results suggest that attendance at this self-referral centre was beneficial in a considerable proportion of motivated clients with alcohol problems regardless of which of the two treatments were chosen. For those who nominated heroin as their main preferred drug, no

significant change in consumption was observed during the study but client numbers were too small to allow further data analysis.

As expected in this population, there was a high incidence of (self-reported) psychiatric problems, consisting mainly of depression (43.2%) or combinations of depression, anxiety (27.7%). Also not surprising was the high attrition rate with only 40% of the original sample attending at 6 months despite active attempts to follow up those who dropped out. Contributing factors may have been psychiatric disability, low mean income, lack of fixed address, legal problems and drug/alcohol dependence. However, in those completing 6 months treatment, results were encouraging; significant reductions in depressive and anxiety symptoms were noted (Tables 5, 6).

With regard to treatment, counselling, various behavioural therapies and self-help groups have a long history in alcohol and drug dependence. In general the results reported are mixed, showing moderate decrease in alcohol consumption but a high rate of dropout and of relapse. For example, Bottlender and Soyka (2005), Lock et al. (2006) and Mueller et al. (2007) found that only about 40% of patients were abstinent after 3 years. In opiate dependent patients on methadone, counselling decreased heroin and cocaine use but had no effect on drinking outcome at 6 months (Gossop et al., 2006). A study of counselling combined with naltroxone maintenance after opiate detoxification found that 43% of patients had relapsed after one year but there was no adjustment for patients dropping out during detoxification, estimated as 25% (Rabinowitz et al., 1998). Several authors suggest that there is a need for community-based psychological treatments for drug and alcohol dependence (Shakeshaft et al., 2002; Luty, 2003). Set against these results, the treatment programmes we studied appeared to be helpful to NECA clients.

Auricular acupuncture has been assessed as a treatment for alcohol/drug dependence in several trials (Bullock et al. 2002, Bullock et al., 1999; D'Alberto, 2004; Otto et al., 1998; Margolin et al., 2002; Jordan, 2006). The results from randomised, controlled, single blind trials showed no significant evidence for acupuncture being more effective than control treatments. Our study could not provide any evidence for the efficacy of acupuncture.

In the total group, the treatments were associated with reduced alcohol consumption and improved psychological well-being in the short-term. The observed improvements cannot be attributed directly to the treatments since there was no control group. Nevertheless, even if the positive responses of the motivated clients who attended for follow-up were due to non-specific effects, it would seem that their attendance at NECA was valuable.

This study illustrated many of the methodological difficulties in assessing treatment effects under "real world" conditions at a self-referred drug and alcohol centre such as NECA. First, a double-blind, placebo controlled, randomised, crossover study is not feasible in this environment. Second, the choice between two treatments depended on patient preference, the problems of which are discussed by Torgerson and Sibbald (1998a) and subsequent correspondence (McPherson and Chalmers, 1988; Clement et al., 1998; Torgerson and Sibbald, 1998b). It was hoped in the present study to obtain a randomised sample from patients who expressed no preference for acupuncture or counselling. This too proved impossible because all clients expressed a preference. This circumstance may have been partly because the treatments required different attendances (four attendances in the first week for acupuncture but only once weekly for counselling). The acupuncture regimen was modified by NECA staff after preparation of the study protocol. In

addition, there was a heavy preponderance of opiate users preferring acupuncture to counselling (Table 1), resulting in unequal self-selected groups. Third, the high attrition rate despite initial apparent success made long-term follow-up difficult in many cases. Considerable efforts, including the use of a contact tracer, were made to increase the follow-up rate but this failed because many clients had moved away, were no longer at their initial addresses or had stopped using NECA. A thorough search of NECA records and telephone calls proved in vain in obtaining further contact with missing clients, perhaps reflecting the shifting population that typically attends such centres. In the light of the positive benefits obtained by those completing the study, research needs to focus on why treatment is helpful for some individuals, why people drop out and how to improve compliance.

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Table 1. Socio-demographic variables at initial assessment

	Overall sample (N=162)	Acupuncture (N=36)	Counselling (N=126)	p
Gender - % male	67.3	75.0	65.1	NS
Age – mean (s.d.)	36.2 (11.3)	36.8 (13.2)	36.1 (10.8)	NS
Never married - %	51.9	58.3	50.0	NS
Age finished Education - %	17.0 (2.7)	16.4 (3.2)	17.1 (2.6)	NS
Full-time employment - %	17.9	8.6	24.2	<0.01
Living alone - %	35.2	31.4	36.5	NS
Home owner - %	27.3	20.0	29.4	NS
Atheist - %	41.3	42.9	40.8	NS
Income – mean £s per Month (s.d.)[*]	682 (849)	613 (677)	703 (894)	NS
Previous legal problem (%)	55.5	68.6	57.7	<0.01

Table 2. Main drug preferences (%) at initial assessment

	Overall sample (N=162)	Acupuncture (N=36)	Counselling (N=126)
Alcohol	73.3	55.6	77.8
Cannabis	4.3	5.6	4.0
Heroin	14.3	30.6	9.6
Methadone	1.2	2.8	1.6
Speed/Amphetamine	1.9	0.0	1.6
Cocaine	3.1	2.8	4.0
Opium	1.2	2.8	0.8
Other	6.6	2.8	0.0

Table 3. Drug use variables at initial assessment

	Overall sample (N=162)	Acupuncture (N=36)	Counselling (N=126)	p[*]
Main drug preference -% alcohol	73.3	55.6	77.8	<0.01
- using alcohol only	51.9	41.7	54.8	NS
Standard units of alcohol Per week – mean (s.d.)	123.9 (69.9)	123.3 (72.4)	124.0 (69.8)	NS
Main drug preference - heroin	14.3	30.6	9.6	<0.01
Heroin - % heavy use	13.6	27.3	0.0	0.10
Heroin - % IV	45.5	54.5	36.4	NS
Expenditure on drugs in £s Per month – mean (s.d.)	442.9 (719.1)	615.9 (1161.1)	393.3 (526.5)	NS

* unpaired two-tailed t-test acupuncture vs. counselling

Comment; Arunimas original data shows that she recorded consumption and expenditure for all substances.…Brian

Table 4. Psychometric test results at initial assessment and at 2 month and 6 month follow-ups

	Initial		2 months		6 months	
	C **N=126**	**A** **N=36**	**C** **N=80**	**A** **N=19**	**C** **N=55**	**A** **N=9**
Clinical Global Impression Mean (s.d.)	5.48 (0.96)	5.63 (0.94)	3.52 (1.08)	3.88 (1.05)	2.87 (1.13)	2.89 (1.17
Anxiety Score Mean (s.d.)	14.1 (5.9)	14.9 (5.4)	12.7 (5.6)	11.6 (3.6)	9.6 (5.7)	9.6 (5.4)
Beck Depression Inventory Mean (s.d.)	17.2 (7.54)	17.0 (6.18)	15.0 (8.13)	16.0 (4.02)	12.7 (7.74)	14.8 (9.87)
Addiction Severity Index Mean (s.d.)	47.8 (14.0)	45.2 (16.1)	41.1 (16.3)	45.9 (17.2)	29.2 (18.5)	35.7 (22.7)
Leeds Dependency Questionnaire Mean (s.d.)	18.3 (7.4)	18.2 (8.6)	15.7 (7.7)	16.4 (8.0)	11.4 (8.0)	14.1 (6.13)
* % Ready to change	69	64				

C = Counselling   A = Acupuncture, subject numbers shown in brackets
* % scoring 10 on Readiness to Change Ladder

Table 5. Initial assessment of psychometric tests and alcohol consumption in subjects followed up for 6 months (completers) and those who dropped out (non-completers)

	N	Completers mean (s.d.)	N	Non-completers mean (s.d.)	p
Clinical Global Impression	58	5.33 (0.89)	89	5.65 (1.56)	0.029
Anxiety score	60	14.26 (5.00)	90	14.24 (6.34)	0.84
Beck Depression Inventory	60	16.65 (7.11)	90	17.61 (7.30)	0.33
Addiction Severity Index	59	44.36 (14.88)	89	49.56 (13.16)	0.014
Leeds Dependency Questionnaire	59	16.32 (7.30)	89	19.83 (7.33)	0.003
Alcohol units Weekly	60	92.32 (70.30)	90	96.47 (83.27)	0.68

Significance analysed by unpaired two-tailed t-test

Table 6. Psychometric test results and alcohol consumption in subjects followed up for 6 months (completers)

	Initial assessment		6 months		p
	N	**mean (s.d.)**	**N**	**mean (s.d.)**	
Clinical Global Impression	58	5.33 (0.89)	58	2.82 (1.14)	<0.001
Anxiety Score	60	14.26 (5.00)	59	9.46 (5.40)	<0.001
Beck Depression Inventory	60	16.65 (7.11)	59	13.05 (8.02)	0.010
Addiction Severity Index	59	44.36 (14.88)	59	30.15 (19.14)	<0.001
Leeds Dependency Questionnaire	59	16.32 (7.30)	59	11.68 (7.76)	0.001
Alcohol units Weekly	60	92.32 (70.30)	59	35.34 (55.09)	<0.001

Significance analysed by one-way ANOVA

Comment: less than 0.001, undereline is confusing