

# Ear acupuncture for co-occurring substance abuse and borderline personality disorder: an aid to encourage treatment retention and tobacco cessation

Elizabeth B Stuyt<sup>1,2</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/acupmed-2014-010540>).

<sup>1</sup>Department of Psychiatry, University of Colorado, Denver, Colorado, USA

<sup>2</sup>Circle Program, Colorado Mental Health Institute at Pueblo, Pueblo, Colorado, USA

## Correspondence to

Dr Elizabeth B Stuyt, Department of Psychiatry, University of Colorado, 1600 W. 24th Street, Pueblo, Denver, CO 81003, USA; [Elizabeth.stuyt@state.co.us](mailto:Elizabeth.stuyt@state.co.us)

Received 4 February 2014

Accepted 21 April 2014

Published Online First

13 May 2014

## ABSTRACT

**Objectives** Retention of individuals with co-occurring borderline personality disorder (BPD) and substance use disorders in treatment is known to be difficult. An outcome study of a tobacco-free 90-day inpatient dual-diagnosis treatment programme that uses several evidenced-based treatments in addition to ear acupuncture (acudetox) was undertaken to determine overall treatment effectiveness.

**Methods** Between January 2009 and December 2011, 231 patients were treated in the programme, 88% with nicotine dependence and 79% with personality disorder diagnoses. All patients completing the programme were invited to enrol in a 1-year follow-up study in which they responded to monthly questionnaires to assess outcomes.

**Results** 185 patients (80%) successfully completed the programme. There was no correlation between successful programme completion and gender, race, age, primary drug dependence diagnosis or primary psychiatric diagnosis. The use of acudetox was positively correlated with successful completion ( $p=0.006$ ). Of the 78 patients with BPD, 100% of men and 83% of women successfully completed the programme. Their use of acudetox was positively correlated with successful completion ( $p=0.026$ ). At the end of the year, 140 questionnaires were returned: 51 patients with BPD reported outcomes similar to the group as a whole, with 55% sober and doing well.

**Conclusions** The use of acudetox was positively correlated with both successful completion of the programme for those with BPD as well as successful tobacco cessation, which ultimately improves the ability to maintain sobriety.

## BACKGROUND

The prevalence of personality disorders in those with substance use disorders treated

in inpatient or residential settings has been shown to be as high as 70–80%.<sup>1</sup> Verheul<sup>2</sup> found the median prevalence rate of personality disorders among a population of treated addicts to be 56.5%. Ross *et al*<sup>3</sup> reported 53% personality disorders in another population, with borderline personality disorder (BPD; 74%) and antisocial personality disorder (ASPD; 66%) being the most prevalent. Patients with ASPD and BPD have consistently been associated with risk for early dropout from all types of substance abuse treatment.<sup>4</sup> BPD is thought to be a serious mental illness, beginning in early adulthood and marked by a pervasive pattern of instability of interpersonal relationships, self-image, mood and affects, marked impulsivity and a marked fear of abandonment.<sup>5</sup> Individuals with BPD often display recurrent suicidal and self-mutilation behaviours. Samuel *et al*<sup>6</sup> evaluated the impact of 10 personality disorders on early attrition (within the first 30 days) as well as time to dropout during a 9-month therapeutic community residential treatment programme and found that BPD was the only personality disorder negatively related to overall programme retention. While therapeutic community treatment does have an established record of effectiveness in reducing substance use and criminality, the most important outcomes have been shown to be retention in treatment and successful programme completion, as longer time in treatment predicts better long-term outcomes.<sup>7–9</sup> Tull and Gratz<sup>10</sup> studied the impact of BPD on dropout from residential substance abuse treatment among



CrossMark

To cite: Stuyt EB. *Acupunct Med* 2014;**32**:318–324.

men. They found that men with BPD had significantly higher treatment dropout rates than those without BPD, even when accounting for other covariates relevant to treatment dropout such as court-ordered treatment status, major depressive disorder and contract duration. They suggested that, based on the literature, programmes should incorporate dialectical behavioural therapy (DBT) to teach emotion regulation and distress tolerance skills to help with treatment dropout.

DBT has been found to be an effective addition to substance abuse treatment. In a theoretical paper on which components of DBT may be useful in retaining clients in substance abuse treatment, Bornovalova and Daughters<sup>11</sup> identified the mechanisms that can predict treatment dropout among those with comorbid BPD and substance use disorders. These include lack of motivation to engage in treatment, difficulty developing therapeutic alliance and deficits in distress tolerance. Although DBT is useful in promoting all three, a systematic review of studies using DBT in the treatment of comorbid BPD and substance use disorders still found high attrition rates with difficulty retaining participants in treatment.<sup>12</sup> Treatment retention is essential for achieving positive outcomes.

The five-point ear acupuncture protocol known as NADA (National Acupuncture Detoxification Association) or acudetox has been shown to help with treatment retention.<sup>13–15</sup> The NADA protocol has also been shown to be an effective treatment to significantly reduce self-injurious behaviour in depressed adolescents,<sup>16</sup> a behaviour common among those with BPD. In a review of the literature on the use of acupuncture for drug dependence, White<sup>17</sup> points out that, while early trials produced some astonishing results, subsequent large randomised trials reported disappointing results. White reports that, despite the lack of support from systematic reviews which summarise the evidence for acupuncture as ‘equivocal’ and ‘inconclusive’, the use of acupuncture in treatment programmes has held steady and is still widely used, which suggests a ‘mismatch between practice and research’. White suggests that the benefits of acupuncture may have been missed due to the choice of outcome measures and future studies should use outcome measures suggested by clinical experience.

The Circle Program at the Colorado Mental Health Institute at Pueblo is a 90-day inpatient modified therapeutic community treatment programme funded by the State of Colorado to treat people with co-occurring substance abuse and mental health disorders who have failed previous treatment. Most have been in numerous previous treatments and have dropped out or been unsuccessful. Personality disorders are present in 70–80% of those admitted. The programme incorporates cognitive behavioural treatment including Strategies for Self-Improvement and Change (SSC)<sup>18</sup> and DBT,<sup>19</sup> and all patients participate in both. A significant number of patients have experienced abuse and trauma

both as a child and as an adult, contributing to the symptoms of post-traumatic stress disorder (PTSD) and BPD. All patients participate in trauma therapy in the form of group and individual psychotherapy on a weekly basis.

The five-point NADA ear acupuncture protocol was incorporated in 2000 when the programme went completely tobacco-free, initially to help patients with nicotine withdrawal and smoking cessation.<sup>20</sup> It is offered 4–5 days per week on a voluntary basis and is used by most patients. Staff members who are trained in the protocol place five sterile needles in each ear using the points called Sympathetic, *Shenmen*, Kidney, Liver and Lung. Patients sit quietly in a group for 40–45 min, often listening to soft music. Patients who do not want to receive the needles are also allowed to sit in the group and they frequently do but do not receive needles.

Anecdotally, treatment staff noticed that patients with BPD tended to participate in the acudetox more than others and frequently asked for treatments more often. Because the programme has had good success at retaining people with BPD for the full 90 days of treatment in spite of being a modified therapeutic community programme, it was hypothesised that the NADA protocol could aid patients with BPD to remain in treatment and, as a result of longer time in treatment, possibly contribute to successful outcomes after treatment.

## METHODS

An outcome study was undertaken from January 2009 to December 2011, during which time 231 patients were admitted to and discharged from the programme. The goal of this study was to follow patients who successfully completed the programme monthly for up to 1 year after discharge to determine outcomes. Contact was made by telephoning the patient, a family member, their mental health provider, their substance abuse counsellor and/or their probation/parole officer, if applicable, to have them complete a questionnaire regarding the patients’ recovery efforts. Psychiatric and personality disorder diagnoses (table 1) were made by clinical assessment and continual re-evaluation during the patients’ stay by the programme psychiatrist using the Diagnostic and Statistical Manual of Mental Disorders IV criteria.<sup>21</sup>

One hundred and eighty-five patients (80%) successfully completed the 90-day programme and 179 were eligible to enrol in the one-year follow-up outcome study (six had to return to another secure environment making them ineligible). One hundred and fifty-four patients (86%) enrolled (25 declined) and 140 patients (91%) completed the 1-year follow-up. Fourteen patients (9%) were lost to follow-up. Information was obtained using a standardised questionnaire. Responses provided data on patients’ use of drugs, alcohol and tobacco; employment; participation in school or

**Table 1** Patient characteristics and completion of 90-day treatment program

Characteristic	Category	Total Patients N = 231	Completed Program N = 185 (80%)	Did not complete N = 46 (20%)	P value
<b>Gender</b>	Male	127 (55%)	99 (78%)	28(22%)	0.4104
	Female	104 (45%)	86 (83%)	18 (17%)	NS
<b>Race</b>	Caucasian	181 (78%)	148 (82%)	33 (18%)	0.3492
	Hispanic	34 (15%)	26 (76%)	8 (24%)	NS
	African-American	14 (6%)	9 (64%)	5 (36%)	
	Asian	2 (1%)	2 (100%)	0 (0%)	
<b>Age</b>	Years $\pm$ SD	35 $\pm$ 11	36 $\pm$ 11	33 $\pm$ 11	0.1258
	Range	18-65	19-65	18-58	NS
<b>Primary drug dependence diagnosis</b>	Alcohol	77 (33%)	65 (84%)	12 (16%)	0.4898
	Polysubstance	71 (31%)	54 (76%)	17(24%)	NS
	Methamphetamine	34 (15%)	28 (82%)	6 (18%)	
	Cocaine	24 (10%)	20 (83%)	4 (17%)	
	Opiates	15 (7%)	12 (80%)	3 (20%)	
	Cannabis	10 (4%)	6 (60%)	4 (40%)	
<b>Primary psychiatric diagnosis</b>	Bipolar	40 (17%)	31 (78%)	9 (22%)	0.4834
	Depression	51 (22%)	42 (82%)	9 (18%)	NS
	PTSD	67 (29%)	55 (82%)	12 (18%)	
	Other Anxiety	28 (12%)	24 (86%)	4 (14%)	
	Psychotic	22 (10%)	13 (59%)	9 (41%)	
	Substance Induced	14 (6%)	12 (86%)	2 (14%)	
	Other	9 (4%)	8 (89%)	1 (11%)	
<b>Tobacco use on admission</b>	Yes	203 (88%)	159 (78%)	44 (22%)	0.08
	No	28 (12%)	26 (93%)	2 (7%)	NS
<b>Number of previous treatment programs</b>	Inpatient				
	Number $\pm$ SD	2.4 $\pm$ 2.3	2.4 $\pm$ 2.3	2.4 $\pm$ 2.1	0.8712
	Range	0–16	0–16	0–10	NS
	Outpatient - IOP				
Number $\pm$ SD	1.1 $\pm$ 1.3	1.1 $\pm$ 1.3	1 $\pm$ 1.3	0.2651	
Range	0–7	0–7	0–6	NS	
<b>Personality disorders most prevalent diagnoses</b>	No personality disorder	49 (21%)	48 (98%)	1 (2%)	
	Antisocial PD	37 (20%)	22 (59%)	15 (41%)	
	Borderline PD	78 (43%)	68 (87%)	10 (13%)	<0.0001
<b>Tobacco use in treatment</b>	Yes	54 (23%)	36 (67%)	18 (33%)	0.0092
	No	177 (77%)	149 (84%)	28 (16%)	
<b>Tobacco use plan for after treatment</b>	Wants to stay quit	153 (66%)	143 (93%)	10 (7%)	
	Plans to use tobacco	67 (29%)	32 (48%)	35 (52%)	<0.0001
	Ambivalent	11 (5%)	10 (91%)	1 (9%)	

training programmes; participation in support groups; participation in individual or group therapy; maintaining contact with probation officer; frequency of tissue testing for drugs or alcohol; new legal charges; quality of physical health; quality of mental health; hospitalisations; compliance with prescribed medications; living situation; financial stability; and use of their support system.

All statistical calculations were performed using the StatView program 5 (SAS Institute, Cary, North Carolina, USA). Statistical methods included  $\chi^2$  analysis of contingency tables, the Fisher exact test for categorical variables and unpaired t tests for

continuous variables. In all analyses, p values <0.05 were considered evidence of a statistical difference not attributable by chance.

## RESULTS

### Results of 90-day inpatient treatment

For all patients there was no correlation between programme completion and the following factors: primary substance dependence diagnosis; primary psychiatric diagnosis; tobacco use on admission; gender; race; age; or number of previous treatment programmes. Tobacco use during treatment (against the rules) and the patient's plan to use tobacco as soon as possible

after treatment were both significant predictors of a less successful programme completion (table 1).

The programme was successfully completed by 98% of patients with no personality disorder diagnosis, 87% of those with BPD and 59% of those with ASPD ( $p<0.0001$ ). Of the 78 patients with BPD, 19 were men and 59 were women ( $p<0.0001$ ). All 19 of the men with BPD (100%) and 49 of the women (83%) successfully completed the programme. This difference was not statistically significant.

There was no difference between those with BPD ( $n = 78$ ) and those with no personality disorder diagnosis ( $n = 49$ ) with regard to legal status; race; primary substance dependence diagnosis; tobacco use on admission; use of tobacco in treatment; or attitude regarding tobacco use after treatment. Those with BPD were more likely to have a primary psychiatric diagnosis of PTSD (47%) than those with no personality disorder diagnosis (18%) ( $p=0.004$ ). This is not surprising given that all the patients with PTSD and BPD had a history of significant abuse and trauma. While both groups initially in treatment were resistant to open up about their trauma history, those with BPD tended to be much more behaviourally disruptive, engaging in ongoing 'chaos' in the living environment. They complained of constant mood swings, going from happy to sad to angry within minutes. They reported an inability to slow their mind, sit still and initially found it difficult to learn and practice the stress reduction skills taught to all the patients including mindfulness, progressive relaxation and biofeedback.

Thirty-one (84%) of those with ASPD were men ( $p<0.0001$ ). The most significant difference between those with ASPD and those with BPD and no personality disorder diagnosis was their attitude about tobacco use after treatment. While 59% of those without a personality disorder diagnosis reported a desire to stay away from tobacco and 62% of those with BPD (56% of women and 79% of men) reported a desire to stay away from tobacco after discharge, the majority of those with ASPD (52%) reported a plan to smoke as soon as possible once discharged ( $p=0.0013$ ).

One hundred and ninety-four patients (84%) participated in the NADA acudetox. The use of NADA acudetox was positively correlated with successful completion of the programme, with 84% of those using it successfully completing the programme compared with only 62% of those not using it ( $p=0.006$ ). The length of stay for those successfully completing the programme was  $87 \pm 7$  days compared with  $40 \pm 22$  days for those not completing the programme. Tobacco users who used acudetox ( $n = 170$ ) stayed an average of  $80 \pm 19$  days compared with 33 tobacco users who did not use acudetox who stayed  $63 \pm 33$  days ( $p<0.0001$ ). The use of the NADA protocol appeared to help those who reported high stress levels due to nicotine cravings. For those reporting a plan to use tobacco as soon as possible after discharge, a greater number of acudetox sessions was

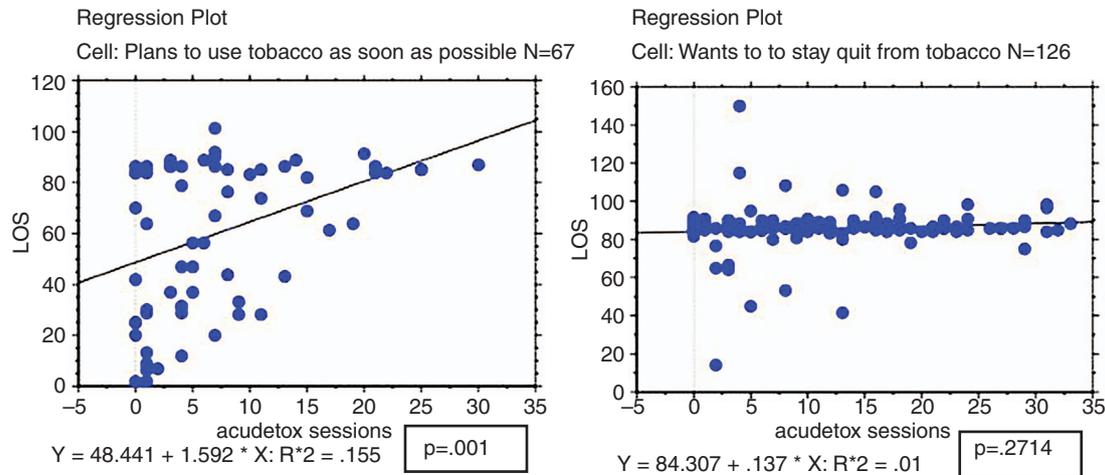
associated with a longer stay in treatment ( $p=0.001$ ), even though they returned to tobacco use after discharge (figure 1). There was no difference in length of stay for those who reported a desire to try to stay away from tobacco and the number of acudetox sessions ( $p=0.2714$ ).

The number of acudetox sessions attended by patients with BPD was positively correlated with successful completion of the programme. Sixty-eight patients with BPD who successfully completed the programme participated in  $13 \pm 9$  sessions compared with  $7 \pm 6$  sessions for those with BPD who did not complete the programme ( $p=0.026$ ) (figure 2). Men with BPD participated in  $14 \pm 10$  sessions while women with BPD participated in  $13 \pm 8$  sessions. Using this treatment, those with BPD found that they were able to sit still quietly without disruption and feel relaxed, which then enabled them to learn and practice more easily the other relaxation techniques being taught. Those with no personality disorder diagnosis participated in  $12 \pm 10$  acudetox sessions while those with ASPD participated in only  $6 \pm 6$  sessions ( $p=0.003$ ).

#### Results of 1-year follow-up

At the end of the 1-year follow-up period, 54% of the 140 patients reported that they were sober and doing well. Of these, 30% reported that they were continuously abstinent from drugs and alcohol the entire year, 18% reported a relapse ( $>2$  episodes of use or persistent use) but were back on track, and 6% reported one or more slips (1 or 2 isolated uses) and were back on track; 19% were in relapse at the end of the year, 3% had died (three of the four had relapsed at the time of death) and 24% had re-offended and were incarcerated. There was no significant difference between the status at the end of the 1-year follow-up period and gender; race; primary substance dependence diagnosis; primary psychiatric diagnosis; tobacco use on admission; presence of a personality disorder diagnosis; or legal status. Age was a factor, with those who were incarcerated ( $32 \pm 9$  years) or relapsed ( $34 \pm 9$  years) being younger than those who were sober ( $35 \pm 9$  years), those who were continuously abstinent ( $38 \pm 12$  years) and those who had died ( $46 \pm 10$  years). The difference in age between those who were incarcerated and those who were continuously sober was significant ( $p=0.04$ ).

Fifty-one (36%) of the 140 patients had BPD (14 men and 37 women). They reported outcomes similar to the group as a whole, with 55% sober and doing well and 29% continuously abstinent from drugs and alcohol for the entire year and no significant difference in the variables identified compared with the group as a whole (figure 3). Recidivism was somewhat lower in the BPD group, with only 18% incarcerated at the end of the year compared with 29% for the 17 in the ASPD group and 23% for the 35 with no personality disorder diagnosis.



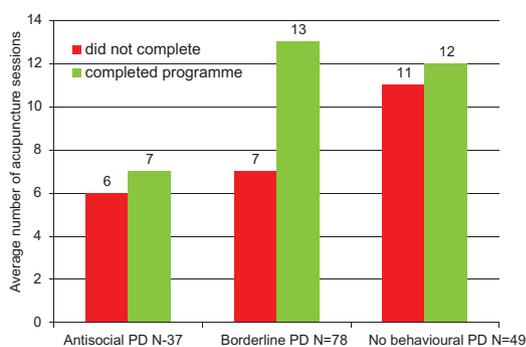
**Figure 1** Length of stay (LOS) in the programme in days by number of acudetox sessions compared with attitude about tobacco use after discharge.

For the entire group of 140, tobacco use after treatment was highly correlated with relapse to drugs or alcohol. Those still using tobacco were much more likely to relapse, with 69% of tobacco users relapsing compared with only 45% of non-tobacco users ( $p=0.01$ ). Patients who were using tobacco on admission but were willing to remain off tobacco after discharge were even more successful at staying sober than those not using tobacco at the time of admission (60% of non-tobacco users on admission relapsed vs 28% of those who refrained from using tobacco vs 69% of those continuing to use tobacco,  $p=0.0115$ ). The time to first relapse after discharge was significantly longer for those not using tobacco than for those using tobacco ( $9 \pm 5$  months vs  $6 \pm 5$  months;  $p=0.008$ ). Those who maintained continuous abstinence from drugs and alcohol throughout the year were more likely not to be using tobacco ( $p=0.03$ ). The number of people refraining from using tobacco at the end of the follow-up period nearly doubled from 20 (14%) on admission to 38 (27%). Those with BPD were more likely to use the time in treatment to quit tobacco than those with ASPD or those with no personality disorder diagnosis. Six out of 51

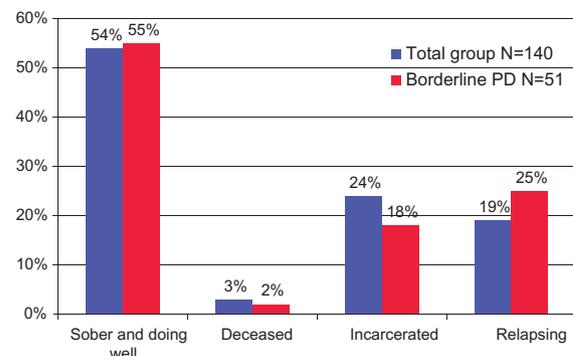
with BPD (12%) were not using tobacco on admission and 17 (33%) reported not using tobacco at the end of the follow-up period. This compares with one of 17 (6%) with ASPD at the start and two (12%) at the end of the follow-up period, and eight of 35 (23%) with no personality disorder diagnosis at the start and 10 (29%) at the end. Interestingly, for all 140 people, those not using tobacco at the end of the follow-up period used significantly more acudetox sessions when they were in treatment ( $15 \pm 9$ ) than those who were still using tobacco ( $12 \pm 8$ ) ( $p=0.04$ ).

## DISCUSSION

Patients with BPD in this study did remarkably well, both in remaining for the entire 90 days of treatment and then in maintaining sobriety in the year after treatment. They were also more successful at tobacco cessation and avoiding recidivism than those with ASPD or even those with no personality disorder diagnosis. While all patients are required to participate in cognitive behavioural therapy (SSC, DBT) groups, gender-specific trauma groups and individual trauma psychotherapy weekly throughout the programme, the NADA ear acupuncture is totally



**Figure 2** Programme completion by acudetox sessions. PD, personality disorder.



**Figure 3** Status at end of 1-year follow-up. PD, personality disorder.

voluntary. There are four acudetox groups per week. Patients are encouraged to attend the groups as often as they like during their first month, but at the start of their second month they are required to attend other groups offered at the same time such as cue exposure and anger management.

The limitations of this study include the naturalistic design and retrospective nature of the analysis. There was no randomisation, placebo treatment or true control group for the acupuncture. While the strengths of this study include the assistance by probation officers who reported results of tissue testing including urine, breath and hair to document use of drugs or alcohol during the 1-year follow-up, limitations include the fact that none of these tests included nicotine, nicotine metabolites or carbon monoxide testing. Data on tobacco use were therefore obtained by self-report and observation by others. However, research indicates that self-report correlates with serum cotinine levels and can be a good indicator of actual smoking status.<sup>22</sup> Another limitation was that 22% of the patients were not followed by a probation officer and therefore did not have tissue testing results. Slips, relapses and tobacco use in these individuals were obtained by self-report and observation by others only. Nevertheless, empirical studies have indicated that carefully collected self-report alcohol and drug use data are accurate.<sup>23 24</sup>

In our experience, NADA acudetox is a safe, effective, low-cost, non-verbal intervention that can be used to help patients to be more present and mindful, allowing them to be more open to other therapeutic interventions. Patients with BPD and substance use disorders often have never experienced what it is like to sit quietly for 40–45 min, and it is therefore difficult to teach them mindfulness and other stress tolerance skills. When they sit in a group with five needles in each ear, they experience an immediate calming effect and realise that they can sit still. The calming effect they experience increases their motivation to engage in other aspects of the treatment programme. The protocol definitely fosters the therapeutic alliance, in that the patient demonstrates trust in the treatment providers by allowing them to put needles

in their ears and the positive effect they experience reinforces the alliance.

**Correction notice** This article has been corrected since it was published Online First. Figure 1 legend has been amended to read 'Cell: Plans to use tobacco as soon as possible N=67' and figures 2 and 3 have been updated.

**Acknowledgements** The author would like to thank Spencer Troy Beck, Sandra M Cordova, Kimberly Dionysus, Jessica Espinoza, Karen A Farr, Rosie Freeman, Jeanette Grant, Peggy Hicks, Brenda McBride, Jose Vega and Stacey Waring for their work in making numerous telephone calls in order to complete the questionnaires and obtain the data.

**Contributors** The author conceived the paper, analysed the data and wrote the report.

**Competing interests** None.

**Patient consent** Patients were provided with informed consent and signed releases of information for all persons to be contacted.

**Ethics approval** The local Institutional Review Board of Parkview Hospital in Pueblo, Colorado approved the study.

**Provenance and peer review** Not commissioned; externally peer reviewed.

## REFERENCES

- 1 Verheul R, Ball S, van den Brink W. Substance abuse and personality disorders. In: Kranzler HR, Rounsaville BJ, eds *Dual diagnosis and treatment: substance abuse and comorbid medical and psychiatric disorders*. New York: Marcel Dekker, 1998:317–63.
- 2 Verheul R. Co-morbidity of personality disorders in individual with substance use disorders. *Eur Psychiatry* 2001;16:274–82.
- 3 Ross S, Dermatis H, Levounis P, et al. Comparison between dually diagnosed inpatients with and without axis II comorbidity and the relationship to treatment outcome. *Am J Drug Alcohol Abuse* 2003;29:263–79.
- 4 Meier PS, Barrowclough C. Mental health problems: are they or are they not a risk factor for dropout from drug treatment? A systematic review of the evidence. *Drugs Education Prevention Policy* 2009;16:7–38.
- 5 American Psychiatric Association. *American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders*. 5th edn. Washington, DC: American Psychiatric Association, 2013.
- 6 Samuel DB, LaPaglia DM, Maccarelli LM, et al. Personality disorders and retention in a therapeutic community for substance dependence. *Am J Addict* 2011;20:555–62.
- 7 De Leon G, Schwartz S. Therapeutic communities: what are the retention rates? *Am J Drug Alcohol Abuse* 1984;10:267–84.
- 8 Condelli WS, Hubbard RL. Relationship between time spent in treatment and client outcomes from therapeutic communities. *J Subst Abuse Treat* 1994;11:25–33.
- 9 Deitch DA, Drago L. The therapeutic community for drug abuse treatment: a journey yet unfolding in the recovery movement. In: Johnson BA, ed. *Addiction medicine science and practice*. New York: Springer, 2011:905–23.
- 10 Tull MT, Gratz KM. The impact of borderline personality disorder on residential substance abuse treatment dropout among men. *Drug Alcohol Depend* 2012;121:97–102.
- 11 Bornoalova MA, Daughters SB. How does dialectical behavioral therapy facilitate treatment retention among

## Summary points

- ▶ Drug use is commonly associated with personality disorder.
- ▶ In a residential drug treatment programme, we offered acupuncture for detoxification including smoking cessation.
- ▶ The patients who used acupuncture were more likely to complete the programme and be drug-free at 1 year.
- ▶ Those persisting with tobacco use were more likely to relapse.

- individuals with comorbid borderline personality disorders and substance use disorders? *Clin Psychol Rev* 2007;27:923–43.
- 12 Pennay A, Cameron J, Reihert T, *et al*. A systematic review of interventions for co-occurring substance use disorder and borderline personality disorder. *J Subst Abuse Treat* 2011;41:363–73.
  - 13 Stuyt EB, Meeker JL. Benefits of auricular acupuncture in tobacco-free inpatient dual-diagnosis treatment. *J Dual Diagnosis* 2006;2:41–52.
  - 14 Bullock MI, Umen AJ, Culliton PD, *et al*. Acupuncture treatment of alcohol recidivism: a pilot study. *Alcohol Clin Exp Res* 1987;11:282–95.
  - 15 Washburn AM, Fullilove RF, Lullilove MT, *et al*. Acupuncture heroin detoxification: a single-blind clinical trial. *J Subst Abuse Treat* 1993;11:345–51.
  - 16 Nixon MK, Cheng M, Cloutier P. An open trial of auricular acupuncture for the treatment of repetitive self-injury in depressed adolescents. *Can Child Adolesc Psychiatry Rev* 2003;12:10–2.
  - 17 White A. Trials of acupuncture for drug dependence: a recommendation for hypothesis based on the literature. *Acupunct Med* 2013;31:297–304.
  - 18 Wanberg KW, Milkman HB. *Criminal conduct and substance abuse treatment: strategies for self-improvement and change*. Thousand Oaks, CA: Sage Publications, 1998.
  - 19 Linehan MM, Schmidt H, Dimeff LA, *et al*. Dialectical behavioral therapy for patients with borderline personality disorder and drug dependence. *Am J Addict* 1999;8:279–92.
  - 20 Bier ID, Wilson J, Studt P, *et al*. Auricular acupuncture, education, and smoking cessation: a randomized, sham-controlled trial. *Am J Public Health* 2002;92:1642–7.
  - 21 American Psychiatric Association. *American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders*. 4th edn. Washington, DC: American Psychiatric Association, 1994.
  - 22 Caraballo RS, Giovino GA, Pechacek TF, *et al*. Factors associated with discrepancies between self-reports on cigarette smoking and measured cotinine levels among persons aged 17 years and older. *Am J Epidemiol* 2001;153:807–14.
  - 23 Babor TF, Steinberg K, Anton R, *et al*. Talk is cheap: measuring drinking outcomes in clinical trials. *J Stud Alcohol* 2000;61:55–63.
  - 24 Del Boca FK, Noll JA. Truth or consequences: the validity of self-report data in health services research on addictions. *Addiction* 2000;95:S347–60.



# Ear acupuncture for co-occurring substance abuse and borderline personality disorder: an aid to encourage treatment retention and tobacco cessation

Elizabeth B Stuyt

*Acupunct Med* 2014 32: 318-324 originally published online May 13, 2014

doi: 10.1136/acupmed-2014-010540

---

Updated information and services can be found at:

<http://aim.bmj.com/content/32/4/318.full.html>

---

*These include:*

**References**

This article cites 19 articles, 2 of which can be accessed free at:

<http://aim.bmj.com/content/32/4/318.full.html#ref-list-1>

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

---

**Notes**

---

To request permissions go to:

<http://group.bmj.com/group/rights-licensing/permissions>

To order reprints go to:

<http://journals.bmj.com/cgi/reprintform>

To subscribe to BMJ go to:

<http://group.bmj.com/subscribe/>