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NADA Acupuncture Prospective Trial in Patients with Substance Use Disorders and Seven Common Health Symptoms

Kenneth O. Carter, MD, MPH. Dipl.Ac.¹ Michelle Olshan-Perlmutter, PMHCNS-BC, FNP-BC,¹
H. James Norton, PhD,² and Michael O. Smith, MD, DOM³

ABSTRACT

Background: National Acupuncture Detoxification Association (NADA) acupuncture is a simple standardized Five-Point auricular needling protocol that originated as a grassroots response to opiate addiction in the 1970s. It is increasingly recognized as a nonspecific behavioral health intervention of notable utility in a wide variety of other psychiatric settings and conditions.

Objective: The aim of this trial was to evaluate the effectiveness of NADA acupuncture in reducing the severity of seven common behavioral health symptoms associated with addictive substance use.

Design: This was a prospective trial in a self-selected population of nonrandomized patients.

Setting: The trial was conducted at the Mecklenburg County Substance Abuse Services Center (SASC) in Charlotte, NC.

Patients: All 167 patients participating in the study met *Diagnostic and Statistical Manual for Mental Disorders—IV Edition, American Psychiatric Association* criteria for a current diagnosis of Substance Use Disorder.

Intervention: The interventions examined were NADA-acupuncture-plus-conventional treatment versus conventional-treatment-only within a highly structured 28-day residential treatment program.

Main Outcome Measure: The outcome sought was a change in symptom severity from baseline as shown on a 10-point Likert scale.

Results: NADA acupuncture plus conventional treatment was associated with statistically significant improvement ($p=0.0001$) across all symptom measures. p -Values were obtained from a t -test analysis using SAS statistical software, version 9.1.

Conclusions: NADA acupuncture may help facilitate significant reduction in cravings, depression, anxiety, anger, body aches/headaches, concentration, and decreased energy.

Key Words: Acudetox, Acupuncture, Addiction, National Acupuncture Detoxification Association, Psychiatry, Substance Use

INTRODUCTION

ACUPUNCTURE IS ONE OF THE MOST WIDELY USED alternative therapies within the context of addiction treatment. This alternative therapy has been used as an ad-

junct to conventional therapy because acupuncture reduces cravings and withdrawal symptoms associated with addictive substance use and contributes to improved treatment engagement and treatment retention.^{1,2} National Acupuncture Detoxification Association (NADA) acupuncture

¹Department of Psychiatry, Carolinas Medical Center, Charlotte, NC.

²Department of Biostatistics, Carolinas Medical Center, Charlotte, NC.

³Department of Psychiatry, Lincoln Hospital, Bronx, NY.

is simple and easily taught; it is commonly referred as acudetox, acupuncture detoxification, five-point ear acupuncture protocol, five-point protocol, and 5 NP; it involves bilateral needle insertion at auricular Sympathetic, Shen Men, Kidney, Liver, and Lung points. Beyond the actual needling, a key element of NADA acupuncture specifies qualities of behavior and attitude on the part of the clinician consistent with what is known as the “Spirit of NADA.” NADA acupuncture is not dependent on Traditional Chinese Medicine theory but, rather, can be used in the acute and chronic phases of medical and psychiatric disease, across a broad spectrum of symptoms and conditions; this kind of acupuncture can also be used before and after a diagnosis has been made.^{3,4}

Outcome reports on adjunctive auricular acupuncture treatment have been published only to a limited degree with mixed results.^{5–15} In the past, there has been an emphasis on placebo-controlled studies. There are alternatives to placebo-controlled designs that are more appropriate to the study of NADA acupuncture outcomes.¹⁶ For example, Schwartz et al.,¹⁷ in a landmark Centers for Substance Abuse Treatment naturalistic study design compared recidivism rates in 3 outpatient and 4 residential addiction-treatment programs. Schwartz et al. found that addicts choosing NADA acupuncture treatment as outpatients were less likely to relapse in the 6 months following discharge than patients who chose residential programs that did not include NADA acupuncture.

Two additional controlled clinical trials provide strong support regarding NADA acupuncture use as an adjunctive treatment for alcoholics. The Bullock et al. 1987¹⁸ and 1989¹⁹ studies produced significantly better outcomes for patients in the active group who received NADA acupuncture on measures of attendance and self-reported need for alcohol. The control group self-reported more than twice the number of drinking episodes, compared to the active group who received NADA acupuncture. In addition, the control group had twice the rate of hospital readmission to the alcohol detoxification unit during the follow-up period.¹⁹

Researchers have noted the following variety of specific physiological effects associated with acupuncture as cited in Brewington et al.’s 1994 comprehensive review of the acupuncture literature.¹⁰ It has been reported that acupuncture at traditional points produced effects in electroencephalogram, glomerular filtration rate GFR, blood flow, and breathing rate, while stimulation of control points by acupuncture needles produced little-to-no appreciable effect. Studies have linked acupuncture to the production of endogenous opiate peptides, such as β -endorphin, and met-enkephalins. Acupuncture has also been associated with changes in the production of other neurotransmitters, including ACTH, cortisol, serotonin, norepinephrine, and dopamine levels.

While the importance of neurotransmitters in behavioral health (including the substance use disorders) is well-established, a detailed consideration of how neuroscience

implications may inform our understanding of clinical outcomes and applications of NADA acupuncture is beyond the scope of this article.

METHODS

All study participants were residents of the highly structured Mecklenburg County Substance Abuse Services Center (SASC). All 167 patients treated in the SASC’s 28-day treatment program between March 2008 and June 2008 were included in this study. Each patient had the option of self-selecting conventional treatment only or conventional treatment plus NADA acupuncture. Conventional treatment included intake assessment, physician physical examination, nursing and nurse-practitioner care, administration of prescription medication, triage to urgent and emergency medical (including psychiatric) services as needed, educational groups, individual and group counseling, nightly 12-Step meetings, dual-diagnosis group, aftercare planning and referral, and a daily study hall. Patients had to meet *Diagnostic and Statistical Manual for Mental Disorders–IV Edition* (American Psychiatric Association, 1994) criteria for a current substance use disorder. There were no exclusion criteria. One hundred and three patients received NADA acupuncture plus conventional treatment, while 64 patients received conventional treatment only.

In this NADA acupuncture-plus-conventional treatment program, patients were needled at five bilateral auricular acupuncture points while seated together in a large group of up to 20 patients per treatment session. The five specific acupuncture points needled were the Auricular Sympathetic, Shen Men, Lung, Kidney, and Liver points.^{3,4} Needles were inserted at the beginning of the treatment hour and generally remained in place for 30–45 minutes. Patients could request needle removal at any time.

The acupuncture needles, manufactured by Helio, were sterile, single-use stainless-steel shafts of 0.20 mm diameter and 7.0 mm length. The needles had bright fluorescent plastic handles. The acupuncture needles were provided in convenient sterile packages.

Needles are normally inserted with a brief but steady movement. Ear needles penetrate approximately 1/8", contacting the cartilage if it is present in that location. Needles are twirled 180° for smoother insertion.

Both the NADA-acupuncture-plus-conventional-treatment group and the conventional-treatment-only group were offered sessions twice weekly on Tuesdays and Thursdays. Both treatments were offered at the same time each day and were conducted simultaneously. Both groups utilized separate rooms located on the same corridor. The group rooms were directly adjacent to each other and were virtually identical in size, shape, and decor. The conventional-treatment-only group participated in a “study hall,” where

NADA TRIAL ON SUBSTANCE USE DISORDERS

3

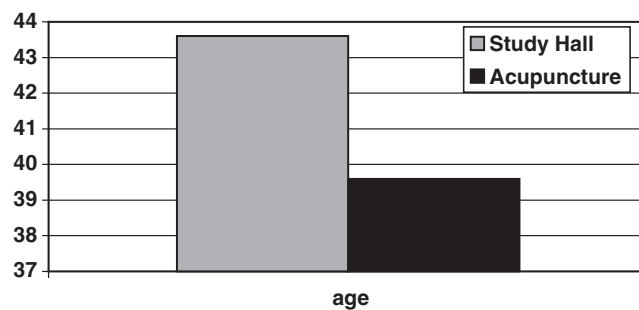


FIG. 1. Demographic data on ages in NADA-acupuncture-plus-conventional-treatment group (Acupuncture) and conventional-treatment-only (study hall) group. NADA, National Acupuncture Detoxification Association.

they had the option to read, write, listen to music, or talk softly. All patients were given written and verbal information about NADA acupuncture. All participants provided signed informed consent forms to participate in the study. Acupuncture detoxification specialists, each with a certificate of training completion from NADA, administered all treatments. The Mecklenburg County SASC institutional review board reviewed and approved the study.

F1–F4 ▶ Demographic and other background data on the study participants are presented in Figures 1–4. There were no statistically significant differences between the active and control groups, compared for gender, race, and SASC program completion. Age was the one variable that produced a statistically significant difference between the two comparison groups. Patients had a mean age of 45 in the conventional-treatment-only group and a mean age of 39 in the NADA-acupuncture-plus-conventional-treatment group (p -value = 0.001).

Data were collected from patients and program staff at baseline, immediately before each treatment hour, and immediately after each treatment hour. Patients in both arms of

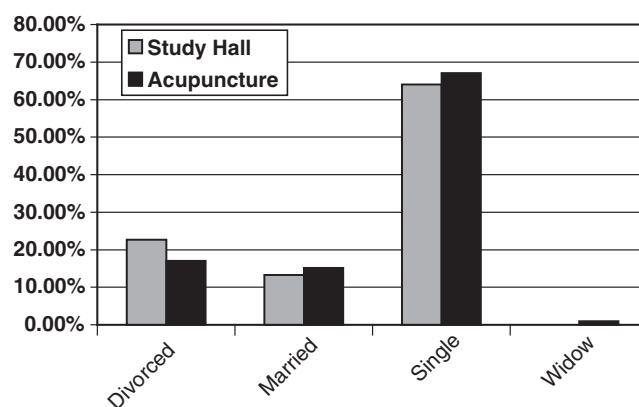


FIG. 2. Demographic data on marital status in NADA-acupuncture-plus-conventional-treatment group (Acupuncture) and conventional-treatment-only (study hall) group. NADA, National Acupuncture Detoxification Association.

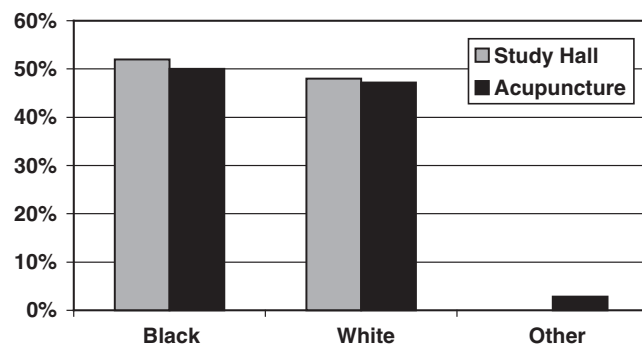


FIG. 3. Demographic data on ethnicity in NADA-acupuncture-plus-conventional-treatment group (Acupuncture) and conventional-treatment-only (study hall) group. NADA, National Acupuncture Detoxification Association.

the study completed a self-report 10-point Likert scale questionnaire. The questionnaire contained the following 7 measures of interest: cravings; depression; anxiety; anger; body aches/headaches; concentration; and decreased energy.

Statistics

All data collected were entered into a single Xcel spreadsheet. Data were analyzed with SAS Statistical software, version 9.1. A t -test was used to analyze the interval data. A paired t -test was performed for each of the 7 measures for the conventional-treatment-only group and for the NADA-acupuncture-plus-conventional-treatment group. The paired t -test compared pre-NADA acupuncture treatment scores to post-NADA acupuncture treatment scores. The paired t -test was also used to compare pre-conventional treatment scores to post-conventional treatment scores. p -Values obtained from t -test analysis were used to compare outcomes from the conventional-treatment-only group to the NADA-acupuncture-plus-conventional treatment group. A p -value of < 0.05 was considered statistically significant.

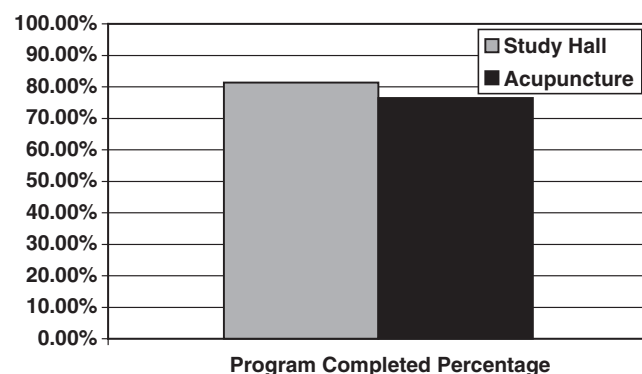


FIG. 4. Program completion in NADA-acupuncture-plus-conventional-treatment group (Acupuncture) and conventional-treatment-only (study hall) group. NADA, National Acupuncture Detoxification Association.

RESULTS

NADA acupuncture-plus-conventional-treatment group scores, measured as % change from baseline, decreased significantly from pre- to post-treatment for all 7 measures. A p -value of 0.0001 was obtained for cravings, depression, anxiety, anger, body aches/headaches, concentration, and decreased energy. There was no statistically significant difference in pre and post scores for the conventional-treatment-only group. When comparing the NADA-acupuncture-plus-conventional-treatment group to the conventional-treatment-only group there was a statistically significant difference for all 7 measures as described below (NOTE: “+” denotes improvement from pretreatment baseline and “-” denotes worsening pretreatment baseline).

- **Cravings** mean score (% change from baseline)—study hall -14%/NADA plus conventional treatment +33% (p -value=0.0001)
- **Depression** mean score (% change from baseline)—study hall 0%/NADA plus conventional treatment +38% (p -value=0.0001)
- **Anxiety** mean score (% change from baseline)—study hall 0%/NADA plus conventional treatment +39% (p -value=0.0001)
- **Anger** mean score (% change from baseline)—study hall -9%/NADA plus conventional treatment +36% (p -value=0.0001)
- **Body aches/headaches** (% change from baseline)—study hall -3%/NADA plus conventional treatment +37% (p -value=0.0001)
- **Concentration** (% change from baseline)—study hall -3%/NADA plus conventional treatment +39% (p -value=0.0001)
- **Decreased energy** (% change from baseline)—study hall -2%/NADA plus conventional treatment +42% (p -value=0.0001).

Discussion

The goal of this pilot study was to examine seven common behavioral health symptoms in a population of patients with substance use disorder diagnoses and to explore whether or not NADA acupuncture plus conventional treatment is helpful for alleviating symptoms measured. It is essential to understand NADA acupuncture's psychological and social mechanism of action in order to use this modality effectively. Given that NADA acupuncture is provided in a well-managed group setting, the novice NADA acupuncture patient is immediately introduced to a calm and supportive group process. Patients describe NADA acupuncture needing as a unique kind of balancing experience, as, for example, “I was relaxed but alert....I was able to relax without losing control,” while patients who are depressed or tired often say that they feel less depressed or more energetic.

This encouraging and balancing group experience becomes a critically important basis for the entire treatment process, improves patients' general sense of well-being, and facilitates a readiness to benefit optimally from conventional treatment that is also provided along with the NADA acupuncture treatment.

The results in this study showed that patients had symptom reduction across all seven common behavioral health symptom measures. Patients with substance use disorder diagnoses clearly struggle with common physical, cognitive, and emotional behavioral health symptoms that may interfere with their ability to receive optimal benefit from conventional treatment. These results suggest that NADA acupuncture is a simple and inexpensive treatment that may help alleviate some of the behavioral health symptoms that can affect individuals with a diagnosis of substance use disorder.

Demographic data for race, gender, and program completion rate did not predict who was likely to self-select for conventional treatment or NADA acupuncture plus conventional treatment. An individual's age was the only demographic variable that produced a statistical difference between the active group and the control group, in that younger subjects were more likely to choose NADA acupuncture in addition to conventional treatment. This suggests that younger subjects might be more comfortable with, and open to, participating in integrative medicine approaches.

Residential treatment staff monitored treatment conditions to ensure uniformity and minimize the likelihood of any potential bias. There was no discernable difference in treatment conditions for the active group and control group with the exception of whether or not NADA acupuncture was offered. All residents participated in conventional treatment or NADA acupuncture plus conventional treatment, and no other treatment options were offered. The outcome of no statistically significant difference in completion rates between the active group and the control group was an unexpected finding. This may speak to the motivation of all participating SASC patients to complete the 28-day program in spite of the emotional, cognitive, or physical symptoms they might have experienced. While further investigation is needed to address this important issue, it is likely that even highly motivated patients will have a less difficult time when NADA acupuncture is available as a simple tool for symptom reduction.

Conclusions

This study showed that NADA acupuncture in combination with conventional treatment for substance use disorder produced substantial relief of seven common behavioral health symptoms while conventional treatment alone did not. Future work should include long-term outpatient follow-up with NADA acupuncture to determine if the ongoing alleviation of common behavioral health symptoms with NADA

NADA TRIAL ON SUBSTANCE USE DISORDERS

5

acupuncture can be maintained in a community setting. Additional studies should also evaluate whether improvement in common behavioral health symptoms associated with the use of NADA acupuncture plus conventional treatment are associated with improvement in the overall severity and course of substance use disorder.

This study has a number of limitations that should be considered in interpreting the findings. The study was not blinded or randomized and the study subjects were self-selected in choosing to participate in NADA acupuncture plus conventional treatment versus conventional treatment alone. Information was not collected in a systematic manner that would allow understanding why certain patients elected to participate in the NADA acupuncture treatment arm and other patients did not.

In future clinical research, it is likely that isolation of NADA acupuncture as an independent variable will continue to be difficult, if not impossible. This situation is all too familiar in the field of psychiatry, where social science, behavioral health, and pharmaceutical interventions come face-to-face with the complexity of “real world” clinical care. The study of NADA acupuncture as an adjunct to conventional behavioral health care in conventional psychiatric settings is a simple approach that is easily understood. This approach may lead in a straightforward manner to potential improvements in patient care.

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DISCLOSURE STATEMENT

No competing financial interests exists for any of the authors.

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Address correspondence to:
Kenneth O. Carter, MD, MPH, DiplAc
Department of Psychiatry
Carolinas Healthcare System
Behavioral Health Center
501 Billingsley Road
Charlotte, NC 28211

E-mail: kenneth.carter@carolinashealthcare.org

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AU1: Spell out ACTH.