

# Utilization of Group-Based, Community Acupuncture Clinics: A Comparative Study with a Nationally Representative Sample of Acupuncture Users

Maria T. Chao, DrPH, MPA,<sup>1</sup> Kimberly M. Tippens, ND, MSAOM,<sup>2</sup> and Erin Connelly, MA<sup>2</sup>

## Abstract

**Objectives:** Acupuncture utilization in the United States has increased in recent years, but is less common among racial/ethnic minorities and those of low socioeconomic status. Group-based, community acupuncture is a delivery model gaining in popularity around the United States, due in part to low-cost treatments provided on a sliding-fee scale. Affordable, community-based acupuncture may increase access to health care at a time when increasing numbers of people are uninsured. To assess the population using local community acupuncture clinics, sociodemographic factors, health status, and utilization patterns compared to national acupuncture users were examined.

**Design:** Data were employed from (1) a cross-sectional survey of 478 clients of two community acupuncture clinics in Portland, Oregon and (2) a nationally representative sample of acupuncture users from the 2007 National Health Interview Survey.

**Results:** Portland community acupuncture clients were more homogeneous racially, had higher educational attainment, lower household income, and were more likely to receive 10 or more treatments in the past 12 months (odds ratio = 5.39, 95% confidence interval = 3.54, 8.22), compared to a nationally representative sample of U.S. acupuncture users. Self-reported health status and medical reasons for seeking acupuncture treatment were similar in both groups. Back pain (21%), joint pain (17%), and depression (13%) were the most common conditions for seeking treatment at community acupuncture clinics.

**Conclusions:** Study findings suggest that local community acupuncture clinics reach individuals of a broad socioeconomic spectrum and may allow for increased frequency of treatment. Limited racial diversity among community acupuncture clients may reflect local demographics of Portland. In addition, exposure to and knowledge about acupuncture is likely to vary by race and ethnicity. Future studies should examine access, patient satisfaction, frequency of treatment, and clinical outcomes of group-based models of community acupuncture clinics located in racially and socioeconomically diverse communities.

## Introduction

**I**NCREASING EVIDENCE SUGGESTS the effectiveness of acupuncture for a range of health conditions, such as chronic pain, chemotherapy-induced nausea, insomnia, substance abuse, and post-traumatic stress disorder.<sup>1–6</sup> Such conditions have high social and economic costs exacerbated by a lack of adequate conventional treatments. Thus, models of service delivery that promote acupuncture utilization are worthwhile areas of investigation. Although the use of acupuncture in the

United States has risen significantly in recent years,<sup>7–9</sup> utilization is least common among blacks and Hispanics, and those with limited household income and education.<sup>10,11</sup> Demand for acupuncture services is sensitive to price,<sup>12</sup> and high out-of-pocket costs for treatment are among the factors that limit access to treatment. In 2007, at least 25% of acupuncture users paid \$75 or more per visit, and median out-of-pocket costs per person was \$122.<sup>9</sup>

The cost of and limited access to acupuncture services has prompted the establishment of group-based, community

<sup>1</sup>Osher Center for Integrative Medicine, University of California, San Francisco, San Francisco, CA.

<sup>2</sup>Helfgott Research Institute, National College of Natural Medicine, Portland, OR.

acupuncture clinics in the United States. Community acupuncture refers to a specific model of providing acupuncture treatments with two defining features. First, community acupuncture clinics utilize a common space with multiple recliners, which enables the practitioner to treat more than one client at a time. Appointments are staggered 10–15 minutes apart, with as many as 6 patients treated by 1 practitioner in an hour. Providing acupuncture in a group setting resembles the model of delivery commonly used in China and, more recently, in multi-bed and high-volume acupuncture clinics in the United Kingdom.<sup>13–15</sup> A second feature of community acupuncture clinics is the provision of treatments based on a sliding-scale fee ranging from \$15 to \$40 per session with no means testing. Patients determine their own payment, but community acupuncture treatments are not free, nor are they subsidized by grant funding. The group setting, community-based locations, and low cost per visit potentially reduce barriers to access for those who might not otherwise utilize acupuncture.<sup>13</sup> Furthermore, affordable visits using the community acupuncture model may allow for more frequent treatments, which in turn could improve the effectiveness of acupuncture.<sup>16</sup>

Since 2004, nearly 200 community acupuncture clinics have opened across the United States.<sup>17</sup> Despite the recent proliferation of community acupuncture clinics in the United States, research on this model of acupuncture delivery is limited. To the authors' knowledge, no extant research has evaluated group-based, community acupuncture as a model of affordable delivery nor characterized differences between clients of community acupuncture clinics and those using other acupuncture services (i.e., individual-based treatments). To address this gap, a study was conducted comparing clients of local community acupuncture clinics in Portland, Oregon with national acupuncture users. Specifically, sociodemographic characteristics, medical reasons for using acupuncture, and frequency of acupuncture treatment were compared between clients of Portland community acupuncture clinics and national acupuncture users.

## Methods

### Data sources

This study employed observational, cross-sectional data from two sources: (1) local, community-based data obtained from a survey of clients at two community acupuncture clinics in Portland, Oregon and (2) nationally representative data of acupuncture users from the 2007 National Health Interview Survey (NHIS).

**Community-based data.** To obtain data from local community acupuncture clinics in Portland, Oregon, a voluntary survey was distributed to clients at two affiliated community acupuncture clinics. One clinic was established in 2002 and currently provides over 400 acupuncture treatments per week. It is one of the first and largest community acupuncture clinics in the United States. To expand affordable acupuncture to additional neighborhoods, the same owners opened a second clinic in a different area of Portland in 2007. Due to their strong neighborhood ties and commitment to serving their communities, these clinics were chosen as optimal research sites to develop an understanding of the scope

of health conditions treated and the population reach of local, community acupuncture clinics.

**Survey development.** A 33-item survey was developed by the research team in collaboration with the community acupuncture clinic staff and administrators. Open- and closed-ended questions were designed to examine sociodemographic data, conditions treated, satisfaction with acupuncture services provided, and the relationship of use with conventional Western medical care. This study reports findings on sociodemographic data, health conditions, cost, and frequency of treatment. Data regarding patient satisfaction based on qualitative data will be reported in a subsequent article. The survey instrument included questions adapted from the NHIS Supplement on complementary and alternative medicine and the Behavioral Risk Factor Surveillance System.<sup>18,19</sup> Additional items were developed by the research team to meet the information needs of the community acupuncture clinic. The survey instrument is available from the authors by request.

**Data collection.** All study procedures and instruments were reviewed and approved by the National College of Natural Medicine institutional review board. Data collection occurred via survey. The paper survey was made available to all clients visiting the community acupuncture clinics for a period of 6 weeks during December 2009–January 2010. To achieve a margin of error of  $\pm 4\%$  at a 95% confidence interval, the investigative team aimed to gather survey data from 500 clients: 350 surveys from the higher-volume clinic site and 150 from the newer, smaller site. The survey was presented to adult clients of both community acupuncture clinic sites in new client paperwork. Returning clients were asked by front desk staff to complete the survey when they arrived for their appointments. Surveys did not request names or other identifying information from clients. Front desk staff reported that the survey took most clients 10–15 minutes to complete. Clients were asked to deposit their completed anonymous surveys in a collection box placed in the clinic waiting area; the box was emptied weekly by research staff. Participation was voluntary, and the clinic staff reported that the survey was acceptable to most clients, but did not document a rate of refusal. Respondents were instructed not to take the survey more than once. To ensure that duplicate data were not included from any individual, one item on the survey asked people whether they had taken the survey before. Data from participants who reported having previously completed the survey or from participants who did not respond to this question were excluded from the study analyses.

**National data.** The National Health Interview Survey (NHIS) is a nationwide, personal interview household survey conducted annually through the National Center for Health Statistics. The NHIS is representative of the civilian, noninstitutionalized population of the United States and employs a complex multistage design with oversampling for minority populations. In 2007, NHIS included a supplement that collected data on use of over 20 complementary and alternative medicine health care practices and reasons for using each modality.<sup>18</sup> The final Sample Adult response rate in 2007 was 67.8%. For the current study, data were extracted

from the NHIS Sample Adult and Family Cores, which include sociodemographic data, and the complementary and alternative medicine supplement. The present study analyses were based on 344 respondents who had seen a practitioner for acupuncture during the past 12 months. Respondents were asked a series of additional questions to obtain details about their acupuncture use, including frequency of visits in the past 12 months, average out-of-pocket payment for each visit, and health problems or conditions for which they used acupuncture.

**Data analyses**

All analyses were performed with Stata version 10.1.<sup>20</sup> To ensure comparability between nationally representative data and community-based data, sociodemographic variables with the same coding in each of the two datasets were created. Race/ethnicity was coded as non-Hispanic white, African American, Latino, Asian American, or other. Education level was coded with four categories: high school or less, some college, college graduate, or graduate degree. Household income was coded in three categories: less than \$35,000, \$35,000–\$74,999, and \$75,000 or more. In both datasets a dichotomous variable was also created for the frequency of acupuncture treatments, coded as (1) 10 or fewer treatments in the prior 12 months and (2) more than 10 treatments in the prior 12 months.

Analyzing NHIS data requires adjustment for complex multistage sampling procedures to obtain nationally representative estimates. All analyses based on NHIS data were conducted using Stata *svy*-based commands that adjust for probability sampling units, weights, and strata to account for survey design effects.<sup>20</sup> Using one sample mean comparison and one sample proportion tests, the sample of Portland community acupuncture clients were compared with NHIS population-based estimates. Unadjusted and adjusted odds ratios for frequency of treatment were analyzed through logistic regression analyses.

**Results**

Of the 500 surveys distributed, 478 (96%) were returned. Thirteen (13) surveys were excluded from the current analyses: four from participants who reported having previously completed the survey and nine from participants for whom it was unknown whether they had previously completed the survey. Thus, study analyses are based on 463 respondents completing the survey for the first time. During the 6-week period that the survey was administered, 1154 patients visited the clinics for 2443 visits (an average of 2.1 visits per client). Thus, the completed surveys included 40% of the client base during the survey period.

**Sociodemographic factors**

Shown in Table 1 are sociodemographic factors of acupuncture users, at Portland community acupuncture clinics and in the United States. Portland community acupuncture clients were slightly younger on average (43 versus 48 years of age, range 18–87) and more likely to be female (72% versus 65%) compared to national acupuncture users. Portland community acupuncture clients (87% white, 2% black, 5% Latino, 3% Asian, 4% other) were less heterogeneous racially compared to national acupuncture users (73% white, 5%

TABLE 1. SOCIODEMOGRAPHIC FACTORS OF ACUPUNCTURE USERS, PORTLAND COMMUNITY ACUPUNCTURE CLINICS VERSUS NATIONALLY REPRESENTATIVE SAMPLE

	Portland community acupuncture clients (% distribution)	National acupuncture users (% distribution)
Sex <sup>a</sup>		
Female	71.5	64.9
Race/ethnicity <sup>b</sup>		
Non-Hispanic white	86.6	73.2
African American	2.0	4.9
Latino	4.6	10.2
Asian American	3.3	11.5
Other	3.5	0.3
Place of birth <sup>b</sup>		
Foreign born	7.9	20.4
Education level <sup>b</sup>		
High school or less	1.4	22.2
Some college	26.4	21.3
College graduate	42.7	38.3
Graduate degree	29.6	18.2
Household income <sup>b</sup>		
Less than \$35,000	46.0	24.5
\$35,000–\$74,999	43.6	31.9
\$75,000 or more	10.4	43.7
Health status		
Poor or fair	15.1	16.9
Good	37.1	31.1
Very good	37.3	31.3
Excellent	10.5	20.1

<sup>a</sup>Statistically significant difference between Portland community acupuncture clients and national acupuncture users at  $p < 0.01$ .

<sup>b</sup>Statistically significant difference between Portland community acupuncture clients and acupuncture users nationwide at  $p < 0.001$ .

black, 10% Latino, 12% Asian, <1% other). Slightly less than 8% of Portland community acupuncture clients were foreign born compared to 20% of national acupuncture users. Interestingly, Portland community acupuncture clients had higher educational attainment than national acupuncture users (72% versus 57% had completed college-level education or more) but lower household income (46% versus 25% with income less than \$35,000). Self-reported health status was comparable in both groups, with the majority in good or very good health.

**Primary medical reasons for seeking acupuncture treatment**

Compared to national acupuncture users, Portland community acupuncture clients had similar medical reasons for seeking acupuncture treatment (87% used acupuncture for a specific health problem; data not shown). As shown in Table 2, back pain was the most common medical reason individuals sought acupuncture treatment at Portland community acupuncture clinics and nationwide (21% and 29%, respectively). The two samples were similar in proportion reporting neck pain, arthritis, and fibromyalgia as medical reasons for using acupuncture. A statistically significant difference was observed for depression, which was cited as a primary medical reason for treatment among 13% of Portland community acupuncture

TABLE 2. PRIMARY MEDICAL REASONS FOR USE OF ACUPUNCTURE, PORTLAND COMMUNITY ACUPUNCTURE CLIENTS VERSUS NATIONALLY REPRESENTATIVE SAMPLE

Medical reason for using acupuncture	Portland community acupuncture clients (%)	National acupuncture users (%)
Back pain <sup>a</sup>	20.9	28.8
Joint pain or stiffness <sup>b</sup>	17.4	13.1
Depression <sup>a</sup>	12.8	<1.0
Neck pain	12.2	12.4
Arthritis	6.5	8.4
Severe headache/migraine	5.9	4.7
Fibromyalgia	3.5	4.6
Substance use <sup>b</sup>	2.0	3.7

<sup>a</sup>Statistically significant difference between Portland community acupuncture clients and national acupuncture users at  $p < 0.001$ .

<sup>b</sup>Statistically significant difference between Portland community acupuncture clients and national acupuncture users at  $p < 0.01$ .

clients but less than 1% among national acupuncture users ( $p < 0.001$ ).

#### Cost and frequency of treatments

Among national acupuncture users, 45% paid an average of \$40 or less for acupuncture treatments, compared to 100% of Portland community acupuncture clients (data not shown). Less than 15% of national acupuncture users received more than 10 treatments in the prior 12 months, compared to 48% of Portland community acupuncture clients. In unadjusted analyses, Portland community acupuncture clients were 5 times more likely to have more than 10 acupuncture treatments in the prior 12 months. This statistically significant difference remained (adjusted odds ratio=5.73) when controlling for age, sex, health status, education, and income (Table 3).

#### Discussion

Prior descriptive research of acupuncture in the United States has characterized utilization nationally,<sup>10,11</sup> in regional private practices,<sup>21,22</sup> and at teaching clinics.<sup>23</sup> This study is the first to characterize clients of community acupuncture clinics, a recent trend in the provision of acupuncture in the United States through affordable treatments using a group-based model. The authors sought to ascertain whether there are differences between community acupuncture clients in Portland, Oregon and a nationally representative sample of acupuncture users in the United States. Study findings suggest that, relative to national acupuncture trends, local community acupuncture clinics have a broader reach to those with limited income; nearly half of the Portland community acupuncture clients surveyed have an annual household income of less than \$35,000.

Despite greater economic diversity among community acupuncture clients, the vast majority of clients were non-Hispanic white. Portland has a smaller proportion of minority residents than the United States as a whole, which is likely reflected in the racial/ethnic demographics of the community acupuncture clients in the present study.<sup>24</sup> In

TABLE 3. UNADJUSTED AND ADJUSTED ODDS RATIOS OF RECEIVING MORE THAN 10 ACUPUNCTURE TREATMENTS IN THE PREVIOUS 12 MONTHS

Group	Unadjusted odds ratio (95% CI)	Adjusted odds ratio (95% CI)
National acupuncture users (referent)	1.00	1.00
Portland community acupuncture clients	5.39 (3.54, 8.22) <sup>a</sup>	5.73 (3.70, 8.89) <sup>a</sup>
Age (per year)		1.02 (1.00, 1.03) <sup>b</sup>
Sex		
Male (referent)		1.00
Female		1.30 (0.86, 1.96)
Health status		
Poor or fair (referent)		1.00
Good		1.42 (1.02, 1.96) <sup>b</sup>
Very good		1.10 (0.89, 1.35)
Excellent		1.11 (0.91, 1.35)
Education level		
High school or less (referent)		1.00
Some college		1.58 (0.86, 2.88)
College		1.40 (0.95, 2.04)
Graduate degree		1.27 (0.94, 1.72)
Household income		
Less than \$35,000 (referent)		1.00
\$35,000–\$74,999		0.98 (0.78, 1.22)
More than \$75,000		1.04 (0.86, 1.27)

<sup>a</sup>Statistically significant difference compared to referent category at  $p < 0.001$ .

<sup>b</sup>Statistically significant difference compared to referent category at  $p < 0.01$ .

CI, confidence interval.

addition, as with other types of complementary and alternative medicine, differences in sociocultural exposure to and perceptions of acupuncture, such as knowledge, beliefs, and expectations of treatment, are likely to play a role in limited utilization among certain racial/ethnic minorities.<sup>25</sup> Factors such as limited English proficiency, health literacy, and structural barriers that impede access to conventional health care services may also create barriers to acupuncture use.

The low-cost fee structure of the community acupuncture model may allow for higher frequency of treatment, as supported by data of this study. The frequency of acupuncture treatments was assessed among the national sample and Portland community acupuncture clients. The findings indicate that Portland community acupuncture clients are more likely than national acupuncture users to receive frequent acupuncture treatments (defined as 10 or more treatments in the prior 12 months), regardless of age, sex, income, education, and health status. While recommended frequency of treatments is individual and condition specific, it is notable that weekly or monthly visits are more typical of American acupuncture practice, whereas daily treatments of acupuncture therapy are commonplace in China.<sup>26</sup> While both samples had similar health status and medical reasons for using acupuncture, the extent to which frequency of treatment affects clinical outcomes is an important area for future investigation.

*Study limitations and future research*

Study findings are limited by a number of factors. The surveys were distributed using a convenience sample and therefore may not be fully representative of the clients at Portland community acupuncture clinics. The survey instrument was self-administered and only available in English. Thus, potential respondents with limited literacy or English proficiency may not have completed the survey. In addition, the sampling method did not allow for accessing clients who were dissatisfied with care and do not continue seeking care at Portland community acupuncture clinics. As a result, this sample is more likely to represent individuals who are satisfied with Portland community acupuncture clinics, which may have resulted in an overestimation of frequency of acupuncture treatments. The objective was to compare individuals who sought care at community acupuncture clinics versus other types of acupuncture provision. Unfortunately, data on the specific types of acupuncture utilized by the nationally representative sample is not available from the NHIS. Despite this limitation, NHIS provides a useful comparative sample given the high average cost of acupuncture reported and the fact that the majority of acupuncturists in the United States treat patients individually. A final limitation is that this study utilizes national data collected in 2007 and community-based data collected in 2009. Study findings may therefore be biased by differential time effects between these 2 years, such as inflation or other social influences that impact on the use of acupuncture. Based on analyses adjusting for inflation using the standard consumer price index,<sup>27</sup> it was found that differences in the findings on household income and cost of acupuncture treatment were negligible.

Despite these limitations, the current study provides important preliminary information on local, community-based acupuncture clinics, including differences and similarities between community acupuncture and national acupuncture trends. Given the exponential growth of the community acupuncture movement in recent years, continued monitoring of community acupuncture clinics is warranted to examine issues of access, patient satisfaction, and clinical outcomes of affordable, frequent acupuncture. Currently, over 150 community acupuncture clinics exist but little is known about the health impact of this growing movement. A national study of community acupuncture clinics is needed in order to assess how community acupuncture complements other health behaviors, how community acupuncture is integrated into patients' overall self-management of health, and how frequency of treatment affects various health conditions, including preventive, chronic, and acute conditions.

**Conclusions**

Various subsidized programs have improved access to acupuncture by offering free treatments for specific conditions (e.g., drug detoxification) or to high-risk populations (e.g., minority adolescents).<sup>28-30</sup> Community acupuncture clinics, in contrast, are not limited by disease condition or population and utilize a sliding scale for payment. Community acupuncture clinics may therefore improve access to acupuncture treatments for the working poor and other segments of the population who would not otherwise use

acupuncture. Prior research has documented that utilization of acupuncture is a function of distance from a practitioner.<sup>31</sup> Thus, community acupuncture clinics, which are often located in storefronts and other community-based sites, may reduce geographic barriers to access. In addition, community acupuncture clinics may offer individuals the opportunity for increased frequency of treatments, which raises important questions about the dose-response relationship of acupuncture and health outcomes.

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Address correspondence to:

Maria T. Chao, DrPH, MPA  
 Osher Center for Integrative Medicine  
 University of California, San Francisco  
 Box 1726  
 San Francisco, CA 94143

E-mail: chaom@ocim.ucsf.edu