Published in final edited form as:

J Addict Med. 2011 September ; 5(3): 181–187. doi:10.1097/ADM.0b013e3181ee77cl.

Group-based strategies for stress reduction in methadone maintenance treatment: What do patients want?¹

Declan T. Barry, Ph.D.^{a,b}, Mark Beitel, Ph.D.^{a,b}, Timothy Breuer, B.A.^b, Christopher J. Cutter, Ph.D.^{a,b}, Jonathan Savant, B.S.^b, Skye Peters, B.A.^b, Richard S. Schottenfeld, M.D.^a, and Bruce J. Rounsaville, M.D.^a

^a Yale University School of Medicine, New Haven, CT

^b APT Foundation Pain Treatment Services, New Haven, CT

Abstract

Objectives—To assess methadone maintenance treatment (MMT) patients' willingness to use, and perceived efficacy of, conventional and unconventional group stress reduction treatments

Methods—A survey, developed by the authors, was administered to 150 MMT patients.

Results—Levels of treatment willingness and perceived efficacy for both conventional and unconventional treatments were relatively high; however, ratings for conventional interventions were, on average, significantly higher than those for unconventional ones. The highest rated conventional and unconventional treatments in terms of willingness and perceived efficacy were nutrition and spiritual counseling, respectively, while the lowest rated conventional and unconventional group treatments were anger management and visualization training, respectively. White race was a significant predictor of lower willingness to try conventional and unconventional group therapies and lower perceived efficacy of unconventional group treatment, while female sex and older age were significant predictors of higher levels of willingness to try unconventional group treatment. Higher levels of substance use problems were associated with increased willingness to try conventional group treatment. Higher levels of anxiety emerged as a significant independent predictor of treatment willingness and perceived efficacy for both conventional and unconventional group treatments.

Conclusions—The relatively high levels of treatment willingness and perceived efficacy of conventional and unconventional group stress reduction treatments point to the feasibility of offering these interventions in MMT and suggest that in particular high levels of anxiety are associated with greater treatment willingness and perceived treatment efficacy.

Keywords

Psychological stress; unconventional therapies; opioid-related disorders; group therapy; patient preference

¹This research was supported by funding from the APT Foundation, Inc, and grants from the National Institute on Drug Abuse (K23 DA024050; K24 DA000445; P50DA09241) and U.S. Veterans Administration New England Illness Research Education and Clinical Center.

Correspondence concerning this article should be addressed to: Declan T. Barry, Ph.D., Yale University School of Medicine, CMHC/SAC Room 220, 34 Park Street, New Haven CT 06519-1187. declan.barry@yale.edu.

INTRODUCTION

Since the pioneering studies of Dole and Nyswander in the 1960s on methadone maintenance treatment (MMT) for opioid dependence, non-pharmacological facets of this treatment approach such as counseling have been emphasized (Dole & Nyswander, 1965; Dole et al., 1966). Counseling has been shown to enhance the effects of methadone maintenance in a cost-effective manner (McLellan et al., 1993; Woody et al., 1995; Florentine & Anglin, 1997; Kraft et al., 1997). Group counseling is particularly cost-effective and is commonly used in MMT programs (Kidorf et al., 2006).

One challenge to conducting and investigating group therapies in MMT settings is that limited patient interest in group counseling interventions often results in poor to moderate attendance (Kidorf et al., 2006). While some investigators have developed treatment approaches that positively reinforce MMT patients for attending groups (Kidorf et al., 1995; Petry et al., 2005), little research has focused on MMT patients' preferences for specific group interventions. This paucity of research is surprising given the increasing recognition of the importance of patient perspectives in medical decision-making (Crawford et al., 2002; Say & Thomson, 2003; Luty, 2004; Slade et al., 2005). Research on MMT patients' perceptions has instead focused on (a) preferences for types of treatment programs (e.g., inpatient detoxification, drug-free rehabilitation), clinic-based contingencies or incentives, and opioid agonist (e.g., oral methadone, buprenorphine) or other psychotropic medications (Barnas et al., 1992; Kidorf et al., 1995; Chutuape et al., 1998; White et al., 2007; Luty et al., 2010); (b) satisfaction with MMT and specific MMT services (de los Cobos et al., 2004; Madden et al., 2008); and (c) perceived efficacy of MMT programs (Mavis et al., 1991). To our knowledge, only one study has investigated MMT patients' attitudes toward group counseling interventions. Participants were provided a list of 15 interventions, including medications (e.g., oral methadone, naltrexone, buprenorphine), treatment modalities (e.g., drug-free rehabilitation over 18 months, detoxification, day program), psychosocial interventions (e.g., individual counseling, group counseling, narcotics anonymous), and one unconventional treatment (i.e., acupuncture) and were asked to rate them for perceived usefulness in assisting heroin use cessation: group counseling was ranked tenth (Luty, 2004).

Whereas we previously reported on a) the prevalence of pain and associated substance use and psychiatric correlates, b) prior pain treatment utilization, and c) perceptions of individual psychosocial interventions among the study sample, we did not report on findings related to willingness to use stress-reducing conventional and unconventional group treatments or the perceived efficacy of such interventions (Barry et al., 2009a; Barry et al., 2009b; Barry et al., in press-a). The primary goal of this needs assessment study was to examine treatment willingness and perceived efficacy of nonpharmacological conventional and unconventional group treatments for managing stress. Unconventional treatments refers to medical interventions that are not taught widely in U.S. medical schools or generally available in U.S. hospitals (Eisenberg et al., 1993). Specifically, the present study aimed to examine the association between three sets of variables—demographics (i.e., sex, age, and race or ethnicity), treatment length (i.e., months of current MMT episode), and psychiatric and substance use status (i.e., depression, somatization, anxiety, personality disorder criteria, and drug and alcohol use)—and willingness to use and perceived efficacy of conventional and unconventional group nonpharmacological stress-related treatments. These data might be useful for MMT resource and program planning.

MATERIALS AND METHODS

Participants

Participants were 150 MMT patients (85 men and 65 women) aged 19 to 61 years (M , 41.5; SD , 10.2) who were in treatment for at least six months (Mdn = 24; Q_1 = 12; Q_3 = 60) at one of the three opioid agonist treatment programs operated by the APT Foundation, Inc. (hereafter referred to as APT), a private not-for-profit community-based organization located in New Haven, CT. At the beginning of data collection, APT had a census of approximately 1,500 MMT patients. Participants were predominantly Caucasian (58%), male (57%), never married (53%), and unemployed (43%) or disabled (29%). A majority of participants had at least a high school level of education (68%). All participants had at least one prior MMT episode; the frequency of prior MMT episodes ranged from 1 to 15 (Mdn = 2; Q_1 = 1; Q_3 = 3).

Design

The current study used a cross-sectional survey design.

Procedures

Participants were self-selected in response to study fliers indicating, "This study aims to better understand patients' experiences and treatment needs at APT." No reference to stress, group treatments, conventional medicine, or unconventional medicine was mentioned in the flier. Fliers were posted at APT's Legion, Orchard, and Park MMT clinics. Study inclusion criteria were that participants needed to be (1) currently enrolled in MMT at APT and (2) English speaking. The first 50 patients from each of the 3 MMT clinics who responded to the flier by contacting a research assistant were admitted into the study. All patients who spoke with a research assistant about the study agreed to participate. Research assistants administered the questionnaires after describing the study, including the potential risks and benefits of study participation. Participants were paid \$10 for study participation. This study, involving the use of survey data without subject identifiers, was presented to the Human Investigations Committees at APT and the Yale University School of Medicine and was exempted from review per United States Department of Health and Human Services (HHS) regulation 45 CFR 6.101(b)(2).

Measures

Demographics and Treatment Characteristics: The survey included items concerning patients' sex, age, race/ethnicity, marital or relationship status, level of education, employment status, duration of current MMT episode, and number of prior MMT episodes.

Psychiatric and Substance Use Status: The *Brief Symptoms Inventory 18* (BSI-18; (Derogatis, 2001)) was used to screen for symptoms of depression, somatization, and anxiety. Patients rated how bothered they were by symptoms during the past 7 days using a 5-point Likert-type scale ranging from 0 ("not at all") to 4 ("extremely"). The *Iowa Personality Disorder Screen* (IPDS; (Langbehn et al., 1999), an 11-item mini-structured interview that assesses respondents' characteristic thoughts and feelings, was used to screen for personality disorder criteria. The 4-item substance abuse subscale of the *Behavior and Symptom Identification Scale* (BASIS-24; (Eisen et al., 2004)) was used to screen for problems related to alcohol and illicit drugs in the past 7 days (e.g., "Did you have any problems from your drinking or drug use?").

Group Treatment Willingness and Perceived Efficacy: The needs assessment study questionnaire was developed by the authors, pilot tested on 3 experienced research

assistants, 5 seasoned intake workers, and 10 MMT patients using established guidelines, and revised based on pilot testing feedback (Grant, 2002). The survey was deliberately designed to be brief (<5 minutes) and easy to understand in order to increase compliance and to minimize participant burden. Participants were provided with a list of interventions and response cards, informed that “People cope with stress and problems in different ways,” and asked, “If the following group treatments were offered to you by a trained professional at APT, how willing would you be to try each of them?” “Also, how effective do you think that they would be in treating your stress and problems?” Participants were asked to rate each treatment using 5-point Likert-type scales for willingness [0 (“Not willing at all”) to 4 (“Completely willing”)] and perceived efficacy [0 (“Not effective at all”) to 4 (“Completely effective”)]. The list of conventional and unconventional medical interventions was generated by the authors based on our experience treating patients in our MMT programs and was revised based on the feedback of selected research assistants, intake workers, and MMT patients, as described above.

The list of stress-reduction group treatments included (a) “Physical Exercise,” (b) “Meditation,” (c) “Prayer or Spiritual Counseling,” (d) “Nutrition (advice about healthy food choices),” (e) “Progressive Muscular Relaxation Training (teaches you step-by-step how to relax muscles in your body),” (f) “Visualization Training (teaches you step-by-step how to imagine scenes to help you relax),” (g) “Anger Management Training,” (h) “Sleep Hygiene Training (teaches strategies to help you sleep at night),” and (i) “Communication Skills Training (teaches you guidelines for communicating effectively with others).”

As done previously, for data analytic purposes, we classified interventions as conventional or unconventional based on whether they were taught widely in the U.S. or generally available in U.S. MMT programs (Eisenberg et al., 1993; Barry et al., in press-b). Conventional medical treatments included physical exercise, nutrition or advice about healthy food choices, progressive muscular relaxation training, anger management training, sleep hygiene training, and communications skills training, and unconventional medical treatments included meditation, prayer or spiritual counseling, and visualization training. As more data regarding the safety and efficacy of these interventions and their availability in MMT programs become available, it is likely that some of the interventions listed as unconventional in this study will be better characterized as conventional.

Data Analysis

Descriptive data (means and standard deviations) were calculated for conventional and unconventional medical interventions for treatment willingness and perceived efficacy. Univariate associations between treatment willingness and perceived efficacy were computed using Pearson correlations. Differences on treatment willingness and perceived efficacy across conventional and unconventional interventions were calculated using *t*-tests. We ran four stepwise regression analyses involving the association of demographics/treatment characteristics (step 1) and psychiatric/substance use status (step 2) with willingness to try and perceived efficacy of conventional and unconventional group treatments. All analyses were performed using SPSS 15 (SPSS, Inc., Chicago, IL), and significance was set at the .05 level.

RESULTS

Conventional and Unconventional Group Treatments

Table 1 summarizes means and standard deviations for treatment willingness and perceived efficacy regarding conventional group stress-reduction medical interventions. Participants’ average ratings for conventional group treatment willingness and the perceived efficacy of

these interventions were 2.2 (SD = 1.4) and 2.3 (SD = 1.3), respectively. On average, participants were most willing to try nutrition or advice about healthy food choices as a stress-reduction treatment and were least willing to try anger management training. Similarly, on average, participants rated nutrition or advice about healthy food choices and anger management as the highest and lowest in terms of perceived conventional treatment efficacy, respectively. Methadone dose was not associated—in either the univariate or multivariable models—with treatment willingness or perceived efficacy for any of the conventional or unconventional group treatments.

Table 1 also summarizes participants' ratings of treatment willingness and perceived efficacy regarding unconventional group stress-reduction medical interventions. Participants' average ratings for unconventional group treatment willingness and their perceived efficacy were 2.0 (SD = 1.5) and 2.0 (SD = 1.4), respectively. On average, participants were most willing to try prayer or spiritual counseling as a stress-reduction treatment and were least willing to try visualization training. Similarly, on average, participants rated prayer and visualization training as the highest and lowest in terms of perceived unconventional group treatment efficacy, respectively.

On average, participants reported higher treatment willingness ($t = 2.4$, $df = 148$, $p = 0.017$) and perceived efficacy ($t = 4.4$, $df = 148$, $p = 0.001$) for conventional in comparison to unconventional group treatments. Higher levels of treatment willingness were associated with higher levels of perceived efficacy for both conventional ($r = 0.80$, $p < 0.001$) and unconventional ($r = 0.89$, $p < 0.001$) group treatments.

Association of demographics/treatment characteristics, psychiatric/substance use status with treatment willingness and perceived efficacy

The results of the regression analyses are shown in Table 2. In the first model that examined associations between demographic/treatment characteristics, psychiatric/substance use status, and willingness to try conventional group treatment, each step accounted for significant proportions of the variance. Demographics/treatment characteristics accounted for 7% ($p < 0.05$), with significant and independent contributions from race ($p < 0.005$) but not sex ($p = 0.962$), age ($p = 0.980$), or months enrolled in MMT ($p = 0.651$). Psychiatric/substance use status accounted for an additional 8% ($p < 0.05$) of the variance with a significant and independent contributions from anxiety ($p < 0.005$) and substance use ($p < 0.05$), but not depression ($p = 0.184$), somatization ($p = 0.275$) or personality disorder criteria ($p = 0.174$).

In the model predicting perceived efficacy of conventional group treatment, the second but not the first step of the model accounted for a significant proportion of the variance. Psychiatric/substance use status accounted for 8% ($p < 0.005$) of the variance, with a significant and independent contribution from anxiety ($p < 0.005$) but not depression ($p = 0.058$), somatization ($p = 0.333$), personality disorder criteria ($p = 0.180$), or substance use ($p = 0.072$).

In the model predicting willingness to try unconventional group treatment, both steps accounted for significant and independent proportions of the variance. Demographics/treatment characteristics accounted for 17% ($p < 0.001$), with significant and independent contributions from sex ($p < 0.05$), age ($p < 0.05$), and race ($p < 0.005$), but not for months enrolled in MMT ($p = 0.203$). Psychiatric/substance use status accounted for an additional 12% ($p < 0.005$) of the variance with a significant and independent contributions from anxiety ($p < 0.001$) and personality disorder criteria ($p < 0.01$), but not depression ($p = 0.076$), somatization ($p = 0.262$), or substance use ($p = 0.786$).

In the model predicting perceived efficacy of unconventional group treatment, both steps accounted for significant and independent proportions of the variance. Demographics/treatment characteristics accounted for 10% ($p<0.01$), with significant and independent contributions from race ($p<0.05$), but not for sex ($p=0.082$), age ($p=0.147$), or months enrolled in MMT ($p=0.506$). Psychiatric and substance use status accounted for an additional 14% ($p<0.01$) of the variance with a significant and independent contributions from depression ($p<0.05$), anxiety ($p<0.001$) and personality disorder criteria ($p<0.01$), but not somatization ($p=0.214$), or substance use ($p=0.325$).

DISCUSSION

While group rather than individual treatments may be the norm in many MMT clinics in the U.S., surprisingly little research has investigated MMT patients' perceptions of group counseling interventions. To our knowledge, this study is among the first to investigate treatment willingness and perceived efficacy of nonpharmacological conventional and unconventional group treatments for managing stress among methadone-maintained patients. While MMT patients endorsed relatively high levels of treatment willingness and perceived efficacy for both conventional and unconventional group treatments, on average, respondents reported higher levels of treatment willingness and perceived efficacy for conventional in comparison to unconventional group interventions. Treatment willingness and perceived treatment efficacy for both conventional and unconventional group treatments were significantly associated.

On average, respondents rated their treatment willingness for conventional group stress reduction interventions between "moderately willing" and "very willing" and their perceived efficacy for these interventions between "moderately effective" and "very effective." On average, the conventional group stress-related interventions that were rated highest and lowest in terms of treatment willingness and perceived efficacy were nutrition or advice about healthy food choices and anger management, respectively. Previous research has documented the high prevalence of nutrition-related medical conditions and problems among MMT patients, including deficits in nutrition, obesity, diabetes, hypertension, and hyperlipidemia, and the beneficial changes in diet, weight, and blood lipids following brief nutritional counseling and in consumption of saturated fats, fruits and vegetables following more intense counseling interventions (Mohs et al., 1990; Ockene et al., 1999; Pignone et al., 2003; Fareed et al., 2009; Gosnell & Levine, 2009). The frequent co-occurrence of obesity and substance use disorders has led to recent calls for treatment approaches that address both (See (VanBuskirk & Potenza, 2010)). Consequently, further investigation of nutritional counseling interventions for MMT patients seems warranted. While anger management has not been systematically examined in MMT patients, some interventions—based primarily on cognitive-behavioral principles—have demonstrated efficacy (Glancy & Saini, 2005).

On average, MMT patients rated their treatment willingness for unconventional group treatments as "moderately willing" and their perceived efficacy for these treatments as "moderately effective." On average, the unconventional stress-related interventions that were rated highest and lowest in terms of treatment willingness and perceived efficacy were prayer or spiritual counseling and visualization training, respectively. Although research findings indicate that prayer specific to health is commonly used by the general population in the U.S. as well as MMT patients, there is a paucity of research examining the efficacy of prayer or spiritual counseling in MMT settings (Barnes et al., 2004; Barry et al., in press-b). Our study suggests that given high levels of treatment willingness and perceived efficacy, further investigation of group prayer or spiritual counseling for stress reduction among MMT patients is warranted. While visualization training has not been systematically

investigated for stress management in MMT settings, guided imagery or visualization training by itself or as part of a broader treatment approach (e.g., cognitive-behavioral therapy) has been examined for a variety of medical and psychiatric conditions (Kwekkeboom et al., 2008; Scott-Sheldon et al., 2008; Hassett & Gevirtz, 2009; Roberts et al., 2009).

Our findings extend previous research (Luty, 2004) by demonstrating that varying demographic characteristics and dimensions of psychiatric distress—and not duration of current MMT episode—predict treatment willingness and perceived efficacy of conventional and unconventional group therapies for managing stress. White race was a significant predictor of lower willingness to try conventional and unconventional group therapies and lower perceived efficacy of unconventional group treatment, while female sex and older age were significant predictors of higher levels of willingness to try unconventional group treatment. Higher anxiety was a significant predictor of treatment willingness and perceived efficacy of conventional and unconventional group treatments, whereas lower depression was a significant predictor of higher perceived efficacy of unconventional group treatment. While personality disorder criteria were not associated with conventional group treatment willingness or perceived efficacy, lower levels of personality disorder criteria significantly predicted higher levels of willingness to try unconventional group treatment and its perceived efficacy. Higher levels of substance use problems significantly predicted greater willingness to try conventional group therapy. These findings point to the importance of assessing multiple domains of demographic, psychiatric and substance use in determining treatment willingness and perceived efficacy of conventional and unconventional group treatments for stress reduction.

Several potential limitations are worth noting. Respondents self-selected for study participation; it is unclear if MMT patients who enrolled in the study were different from those who did not. Participants were enrolled in MMT at any one of the three opioid agonist treatment programs run by the same organization in the Northeast; thus, our findings may or may not generalize to other MMT clinics in different geographic regions. Although study data were collected anonymously and respondents were informed that their answers would not affect their treatment status, questionnaires were completed at participants' respective treatment facilities and this may have affected the responses of respondents concerned about how staff might react to their responses. The survey was cross-sectional and thus limits statements regarding causation between study variables. The study measured perceived willingness to try and perceived efficacy of conventional and unconventional group treatments and not actual group treatment utilization patterns. The association between reported group treatment willingness and perceived efficacy and actual utilization patterns in MMT patients is currently unclear.

While the examination of patient preference for specific therapies has not been extensively examined in the research concerning substance abuse treatment, particularly in MMT programs, it represents an important area of investigation in psychotherapy research and patient involvement in decision-making regarding treatment has been emphasized in medical research (Glass et al., 2001; Crawford et al., 2002; Say & Thomson, 2003).

Since there was an absence of validated instruments for conventional and unconventional group treatment willingness and perceived efficacy for MMT patients, we developed a measure, which although face-valid, has not been formally validated. In particular, the list of examples of conventional and unconventional group stress-reduction treatments provided to participants was not exhaustive. Future research on this topic might benefit from a more comprehensive listing of these interventions and systematically examining relevant contextual factors such as current levels of stress, perceived need for stress-reduction

treatments, the extent to which participants had experience with the interventions mentioned, and current medical and psychiatric status (see (Mojtabai et al., 2002; Carmody & Baer, 2008)).

Despite these limitations, this exploratory study represents an initial investigation of willingness to use and perceived efficacy of conventional and unconventional group stress-related treatments among MMT patients. The findings highlight the relative high levels of treatment willingness and perceived efficacy for group stress reduction interventions, in particular conventional ones and suggest that in particular high levels of anxiety are associated with greater treatment willingness and perceived treatment efficacy. Study findings may also have implications for resource and program planning in MMT: Programs wishing to develop or expand group treatments targeting stress reduction might benefit from evaluating those interventions rated higher in terms of treatment willingness and perceived efficacy such as nutritional counseling and progressive muscular relaxation training.

References

- Barnas C, Rossmann M, Roessler H, Riemer Y, Fleischhacker WW. Benzodiazepines and other psychotropic drugs abused by patients in a methadone maintenance program: familiarity and preference. *Journal of Clinical Psychopharmacology*. 1992; 12:397–402. [PubMed: 1361936]
- Barnes PM, Powell-Griner E, McFann K, Nahin RL. Complementary and alternative medicine use among adults: United States, 2002. *Seminars in Integrative Medicine*. 2004; 2:54–71.
- Barry DT, Beitel M, Breuer T, et al. Conventional and unconventional treatments for stress among methadone-maintained patients: Treatment willingness and perceived efficacy. *American Journal on Addictions*. in press-a.
- Barry DT, Beitel M, Cutter CJ, et al. Allopathic, complementary, and alternative medical treatment utilization for pain among methadone-maintained patients. *American Journal on Addictions*. 2009a; 18:379–385. [PubMed: 19874157]
- Barry DT, Beitel M, Cutter CJ, Joshi D, Falcioni J, Schottenfeld RS. Conventional and non-conventional pain treatment utilization among opioid dependent individuals with pain seeking methadone maintenance treatment: A needs assessment study. *Journal of Addiction Medicine*. in press-b.
- Barry DT, Beitel M, Garnet B, Joshi D, Rosenblum A, Schottenfeld RS. Relations among psychopathology, substance use, and physical pain experiences in methadone-maintained patients: An exploratory study. *Journal of Clinical Psychiatry*. 2009b; 70:1213–1218. [PubMed: 19607760]
- Carmody J, Baer RA. Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine*. 2008; 31:23–33. [PubMed: 17899351]
- Chutuaape MA, Silverman K, Stitzer ML. Survey assessment of methadone treatment services as reinforcers. *The American Journal of Drug and Alcohol Abuse*. 1998; 24:1–16. [PubMed: 9513626]
- Crawford MJ, Rutter D, Manley C, et al. Systematic review of involving patients in the planning and development of health care. *British Medical Journal*. 2002; 325:1263–1265. [PubMed: 12458240]
- de los Cobos JP, Fidel G, Escuder G, et al. A satisfaction survey of opioid-dependent clients at methadone treatment centres in Spain. *Drug and Alcohol Dependence*. 2004; 73:307–313. [PubMed: 15036553]
- Derogatis, LR. BSI 18, Brief Symptom Inventory 18: Administration, scoring and procedures manual. NCS Pearson, Inc; 2001.
- Dole VP, Nyswander M. A medical treatment for diacetylmorphine (heroin) addiction: A clinical trial with methadone hydrochloride. *Journal of the American Medical Association*. 1965; 193:646–650. [PubMed: 14321530]
- Dole VP, Nyswander ME, Kreek MJ. Narcotic blockade. *Archives of Internal Medicine*. 1966; 118:304–309. [PubMed: 4162686]

- Eisen SV, Normand SL, Belanger AJ, Spiro A, Esch D. The revised Behavior and Symptom Identification Scale (BASIS-R): reliability and validity. *Medical Care*. 2004; 42:1230–1241. [PubMed: 15550803]
- Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States--Prevalence, costs, and patterns of use. *The New England Journal of Medicine*. 1993; 328:246–252. [PubMed: 8418405]
- Fareed A, Casarella J, Amar R, Vayalapalli S, Drexler K. Benefits of retention in methadone maintenance and chronic medical conditions as risk factors for premature death among older heroin addicts. *Journal of Psychiatric Practice*. 2009; 15:227–234. [PubMed: 19461397]
- Florentine R, Anglin MD. Does increasing the opportunity for counseling increase the effectiveness of outpatient drug treatment? *The American Journal of Drug and Alcohol Abuse*. 1997; 23:369–382. [PubMed: 9261486]
- Glancy G, Saini MA. An evidenced-based review of psychological treatments of anger and aggression. *Brief Treatment and Crisis Intervention*. 2005; 5:229–248.
- Glass CR, Arnkoff DB, Shapiro SJ. Expectations and preferences. *Psychotherapy: Theory, Research, Practice, Training*. 2001; 38:455–461.
- Gosnell BA, Levine AS. Reward systems and food intake: role of opioids. *International Journal of Obesity*. 2009; 33:S54–S58. [PubMed: 19528981]
- Grant J. Learning needs assessment: Assessing the need. *British Medical Journal*. 2002; 324:156–159. [PubMed: 11799035]
- Hassett AL, Gevirtz RN. Nonpharmacologic Treatment for Fibromyalgia: Patient Education, Cognitive-Behavioral Therapy, Relaxation Techniques, and Complementary and Alternative Medicine. *Rheumatic Disease Clinics of North America*. 2009; 35:393–407. [PubMed: 19647150]
- Kidorf, M.; King, VL.; Brooner, RK. Counseling and psychosocial services. In: Strain, EC.; Stitzer, ML., editors. *The treatment of opioid dependence*. Baltimore: The Johns Hopkins University Press; 2006. p. 119-150.
- Kidorf M, Stitzer ML, Griffiths RR. Evaluating the reinforcement value of clinic-based privileges through a multiple choice procedure. *Drug and Alcohol Dependence*. 1995; 39:167–172. [PubMed: 8556964]
- Kraft MK, Rothbard AB, Hadley TR, McLellan AT, Asch DA. Are supplementary services provided during methadone maintenance really cost-effective? *American Journal of Psychiatry*. 1997; 154:1214–1219. [PubMed: 9286179]
- Kwekkeboom KL, Hau H, Wanta B, Bumpus M. Patients' perceptions of the effectiveness of guided imagery and progressive muscle relaxation interventions used for cancer pain. *Complementary Therapies in Clinical Practice*. 2008; 14:185–194. [PubMed: 18640630]
- Langbehn DR, Pfohl BM, Reynolds S, et al. The Iowa Personality Disorder Screen: Development and preliminary validation of a brief screening interview. *Journal of Personality Disorders*. 1999; 13:75–89. [PubMed: 10228929]
- Luty J. Treatment preferences of opiate-dependent patients. *Psychiatric Bulletin*. 2004; 28:47.
- Luty J, O'Gara C, Sessay M, Sarkhel A. A survey of community drug team prescribing policies and client views. *Journal of Substance Use*. 2010; 15:51–59.
- Madden A, Lea T, Bath N, Winstock AR. Satisfaction guaranteed? What clients on methadone and buprenorphine think about their treatment. *Drug and Alcohol Review*. 2008; 27:671–678. [PubMed: 19378450]
- Mavis BE, Devoss GH, Stoffelmayr BE. The perceptions of program directors and clients regarding the efficacy of methadone treatment. *Substance Use & Misuse*. 1991; 26:769–776.
- McLellan AT, Arndt IO, Metzger DS, Woody GE, O'Brien CP. The effects of psychosocial services in substance abuse treatment. *Journal of the American Medical Association*. 1993; 269:1953–1959. [PubMed: 8385230]
- Mohs ME, Watson RR, Leonard-Green T. Nutritional effects of marijuana, heroin, cocaine, and nicotine. *Journal of the American Dietetic Association*. 1990; 90:1261–1267. [PubMed: 2204648]
- Mojtabai R, Olsson M, Mechanic D. Perceived need and help-seeking in adults with mood, anxiety, or substance use disorders. *Archives of General Psychiatry*. 2002; 59:77–84. [PubMed: 11779286]

- Ockene IS, Hebert JR, Ockene JK, et al. Effect of physician-delivered nutrition counseling training and an office-support program on saturated fat intake, weight, and serum lipid measurements in a hyperlipidemic population: Worcester Area Trial for Counseling in Hyperlipidemia (WATCH). *Archives of Internal Medicine*. 1999; 159:725. [PubMed: 10218753]
- Petry NM, Martin B, Simcic F. Prize reinforcement contingency management for cocaine dependence: Integration with group therapy in a methadone clinic. *Journal of Consulting and Clinical Psychology*. 2005; 73:354–359. [PubMed: 15796645]
- Pignone MP, Ammerman A, Fernandez L, et al. Counseling to promote a healthy diet in adults A summary of the evidence for the US Preventive Services Task Force. *American Journal of Preventive Medicine*. 2003; 24:75–92. [PubMed: 12554027]
- Roberts NP, Kitchiner NJ, Kenardy J, Bisson JI. Systematic review and meta-analysis of multiple-session early interventions following traumatic events. *American Journal of Psychiatry*. 2009; 166:293–301. [PubMed: 19188285]
- Say RE, Thomson R. The importance of patient preferences in treatment decisions--challenges for doctors. *British Medical Journal*. 2003; 327:542. [PubMed: 12958116]
- Scott-Sheldon LAJ, Kalichman SC, Carey MP, Fielder RL. Stress management interventions for HIV+ adults: A meta-analysis of randomized controlled trials, 1989 to 2006. *Health Psychology*. 2008; 27:129–139. [PubMed: 18377131]
- Slade M, Leese M, Cahill S, Thornicroft G, Kuipers E. Patient-rated mental health needs and quality of life improvement. *The British Journal of Psychiatry*. 2005; 187:256–261. [PubMed: 16135863]
- VanBuskirk KA, Potenza MN. The Treatment of Obesity and Its Co-Occurrence With Substance Use Disorders. *Journal of Addiction Medicine*. 2010; 4:1–10. [PubMed: 20228868]
- White R, Beazley P, Thompson M, Charnaud B, Cox D, Griffiths V. Patients' views of treatment: methadone vs. *buprenorphine*. *Journal of Substance Use*. 2007; 12:365–373.
- Woody GE, McLellan AT, Luborsky L, O'Brien CP. Psychotherapy in community methadone programs: a validation study. *American Journal of Psychiatry*. 1995; 152:1302–1308. [PubMed: 7653685]

Treatment willingness and perceived efficacy of group conventional and unconventional stress-reduction medical interventions.

Table 1

Stress-Reduction Interventions	Treatment Willingness			Perceived Efficacy		
	% ^a	Mean	St. Dev.	% ^a	Mean	St. Dev.
Conventional						
Physical Exercise	70	2.3	1.3	68	2.1	1.3
Nutrition or advice about healthy food choices	78	2.6	1.2	86	2.6	1.1
Progressive muscular relaxation training	78	2.5	1.3	80	2.5	1.2
Anger management training	51	1.7	1.5	61	1.9	1.4
Sleep hygiene training	66	2.2	1.5	72	2.3	1.4
Communication skills training	63	2.1	1.5	72	2.3	1.4
Mean Total	66	2.2	1.4	72	2.3	1.3
Unconventional						
Meditation	66	2.0	1.4	65	1.9	1.3
Prayer or spiritual counseling	70	2.4	1.5	71	2.4	1.4
Visualization training	55	1.7	1.5	53	1.6	1.4
Mean Total	66	2.0	1.5	66	2.0	1.4

%^a refers to the proportion of respondents who scored 2 or above (i.e., moderately or above) on these 0–4 scales.

Table 2

Predictors of Group Treatment Willingness and Perceived Efficacy.

Measure	R ²	Δ R ²	Δ F	p	β	t	p
<i>Willingness to Try Conventional Group Treatment</i>							
1.	.07	.07	2.64	.036			
Sex*					-.004	-0.048	.962
Age					-.002	-0.025	.980
White Race					-.260	-2.973	.003
Months enrolled at MMT					-.039	-0.454	.651
2.	.15	.08	2.72	.022			
BSI-18 Depression					-.170	-1.334	.184
BSI-18 Somatization					-.113	-1.096	.275
BSI-18 Anxiety					.418	3.055	.003
IPDS Total					-.132	-1.367	.174
BASIS-24 (Alcohol/Drug)					.173	1.982	.049
<i>Perceived Efficacy of Conventional Group Treatment</i>							
1.	.05	.05	1.87	.119			
Sex					.010	0.117	.907
Age					-.147	-1.556	.122
White Race					-.228	-2.578	.011
Months enrolled at MMT					.007	0.083	.934
2.	.13	.08	2.69	.024			
BSI-18 Depression					-.247	-1.915	.058
BSI-18 Somatization					-.101	-0.971	.333
BSI-18 Anxiety					.451	3.255	.001
IPDS Total					-.132	-1.349	.180
BASIS-24 (Alcohol/Drug)					.160	1.815	.072
<i>Willingness to Try Unconventional Group Treatment</i>							
1.	.17	.17	7.14	<.001			
Sex					-.169	-2.148	.033
Age					.229	2.590	.011

Measure	R ²	ΔR^2	ΔF	p	β	t	p
White Race					-.243	-2.946	.004
Months enrolled at MMT					-.105	-1.280	.203
2.	.29	.12	4.64	.001			
BSI-18 Depression					-.209	-1.788	.076
BSI-18 Somatization					-.107	-1.126	.262
BSI-18 Anxiety					.558	4.427	<.001
IPDS Total					-.242	-2.743	.007
BASIS-24 (Alcohol/Drug)					-.022	-0.272	.786
<i>Perceived Efficacy of Unconventional Group Treatment</i>							
1.	.10	.10	3.76	.006			
Sex					-.144	-1.753	.082
Age					.134	1.458	.147
White Race					-.204	-2.370	.019
Months enrolled at MMT					-.057	-0.667	.506
2.	.23	.14	4.95	<.001			
BSI-18 Depression					-.243	-2.006	.047
BSI-18 Somatization					-.123	-1.248	.214
BSI-18 Anxiety					.580	4.439	<.001
IPDS Total					-.242	-2.646	.009
BASIS-24 (Alcohol/Drug)					-.082	-0.987	.325

* Sex was scored 0= female, 1=male.

Bolded p-values were significant at p<.05.