Published in final edited form as:

Addict Res Theory. 2015 ; 23(5): 391–403. doi:10.3109/16066359.2015.1017570.

Treatment choices and subsequent attendance by substance-dependent patients who disengage from intensive outpatient treatment

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Abstract

In an effort to increase engagement in effective treatment, we offered a choice of alternate evidence-based treatments to 137 alcohol- or cocaine-dependent adults (110 males, 27 females) who entered an intensive outpatient program (IOP) but disengaged within the first 8 weeks. We hypothesized that disengaged patients would choose and subsequently attend alternatives to IOP when given the chance, that their choices would be consistent with their previously-stated preferences, and that demographic and clinical characteristics would be predictive of alternatives chosen. Of 96 participants reached by phone, 19% chose no treatment; 49% chose to return to IOP; 24% chose individual psychotherapy; 6% chose telephone counseling; 2% chose naltrexone with medication management. There were few relationships between participant characteristics and choices made upon disengagement. Participants who chose alternative treatments were equally likely to attend their chosen treatment as those who chose IOP. Limited interest in alternative treatments may reflect allegiance to IOP, which was initially chosen by all participants. Implications for implementation of patient-centered adaptive treatment are discussed.

Keywords

intensive outpatient programs; treatment disengagement; treatment choice; adaptive treatment

INTRODUCTION

Failure to engage in treatment, and premature dropout before receiving the planned course of treatment, remain substantial problems in substance misuse treatment (Curran, Stecker, Han, & Booth, 2009; Simpson, Joe, & Brown, 1997). Adaptive treatment approaches that provide flexible care adjusted according to patient response show promise in increasing patient

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DECLARATION OF INTEREST

The authors report no conflicts of interest.

participation in effective treatments (McKay, 2009). One such approach entails outreach to disengaged patients, and providing alternative treatments which may be more attractive or feasible to the patient than the program he or she initially entered.

Providing patients with their choice of treatment for substance misuse, particularly once they have demonstrated their unwillingness or inability to follow through on the treatment which they originally entered, is intuitively appealing and consistent with a patient-centered approach currently considered to be a hallmark of quality health care (Institute of Medicine, 2006). However, the evidence for an approach that prioritizes patient preferences in treatment is still best described as preliminary, with more support for patient preference as a factor in treatment engagement than outcome. In a recent meta-analysis, Swift and Callahan (2009) found a small effect of client treatment preference on psychotherapy outcomes across 26 studies addressing a wide range of presenting problems. They also noted that among the 10 studies that included attendance data, clients who received their preferred treatment were about half as likely to drop out as clients who did not receive their preferred treatment. In the treatment of depression, where patients may choose among effective psychotherapies as well as pharmacotherapies, a review of 15 studies found that patients' preferences may improve the likelihood of treatment initiation and positively impact the development of the therapeutic alliance, while having little direct impact on depression outcome (Gelhorn, Sexton, & Classi, 2011).

Studies of the effect of patient preference in substance misuse treatment are sparse. With regard to engagement, McCrady et al. (2011) found that offering alcohol-dependent women a choice of individual or couples therapy resulted in a greater proportion of eligible participants entering treatment than in a similar study offering only couples therapy, and Graff et al. (2009) found that alcohol-dependent women randomly assigned to treatment that matched their preferences attended more sessions. Regarding outcome, one study found better outcomes among patients who were assigned to treatment consistent with their preference (Brown, Seraganian, Tremblay, & Annis, 2002), whereas several others found no association between patients' receiving treatment consistent with their preferences and outcome (Adamson, Sellman, & Dore, 2005; Kludt & Perlmutter, 1999; McKay, Alterman, McLellan, Snider, & O'Brien, 1995; Sterling, Gottheil, Glassman, Weinstein, & Serota, 1997; Walsh et al., 1991).

Despite the limited data regarding any direct effect of treatment choice on outcomes, the evidence regarding engagement and retention bolsters the rationale for considering it as a means to re-engage treatment-seeking individuals who drop out of treatment. Data in the present paper are drawn from two concurrent studies of adaptive approaches to re-engaging alcohol- and cocaine-dependent patients who entered but disengaged from intensive outpatient treatment programs (IOP). In these adaptive sequential randomization studies (the "adaptive treatment" studies; McKay, Lynch, Van Horn, Oslin, & Ivey, 2014), patients were recruited at intake, and if they failed to engage in treatment within the first 2 weeks, or if they stopped attending for a 2-week period during weeks 3-8 of treatment, they were considered to be disengaged. Disengaged patients received one of 2 randomly-assigned telephone-based interventions, either focused on re-engaging the patient in IOP, or offering and providing alternative treatment options. The aim of the adaptive treatment studies was to

determine which form of outreach was most effective in increasing subsequent treatment engagement and positive alcohol or cocaine use outcomes, with the hypothesis that providing treatment alternatives to disengaged patients would be more effective than simply attempting to re-engage patients in the program from which they had disengaged. The focus of the present article is on the choices made by patients who were offered alternative treatments, as well as the factors associated with, and clinical implications of, those choices.

The outreach intervention was conducted in a Motivational Interviewing style (MI; Miller & Rollnick, 2012). MI, which has been described as “a collaborative conversation style for strengthening a person's own motivation and commitment to change” (Miller & Rollnick, 2012, p. 12), is a brief intervention incorporating strategies intended to elicit client “change talk” and minimize resistance within an empathic and accepting relationship. Initially developed as a treatment for alcohol use disorders, MI has been found to be more effective than no treatment and comparable to credible alternatives with respect to a wide range of target behavior changes (Lundahl & Burke, 2009). While it has not been tested as a means to re-engage patients in treatment, it was included in this study in an effort to conduct the outreach intervention consistently and in a manner that might potentially maximize its effectiveness.

The alternative treatments were evidence-based treatments that were substantively distinct from IOP in format and/or putative mechanism of action, and less readily-available to the patient population than IOP. Options included individual cognitive-behavior therapy (CBT) for those who preferred individual face-to-face treatment rather than a group; individual telephone-based monitoring and adaptive counseling, for those who preferred a less-intensive intervention that did not require clinic visits; and naltrexone with medication management (Anton et al., 2006) for those who had an alcohol use disorder and preferred a biomedical approach with supportive monitoring by a health care professional. Finally, return to IOP was included as an option for participants who felt that IOP was best for them despite their prior disengagement.

We hypothesized that most patients who disengaged from IOP would choose an alternative treatment, since they had already “voted with their feet” by not engaging in or later disengaging from IOP treatment. Furthermore, we hypothesized that participants would be more likely to attend an alternative treatment than to return to the IOP from which they had disengaged.

We expected that certain subgroups of patients would be more likely to select alternative treatments. The recruitment sites in this study served predominantly male patient populations, so that most treatment was provided in mixed-gender groups in which women were the minority. Women's discomfort in mixed-gender treatment groups may lead to treatment disengagement (Center for Substance Abuse Treatment, 2009); therefore, we hypothesized that women would be more likely to choose an alternative treatment than men. Because both IOP sites provide traditional treatment emphasizing the necessity of abstinence to recovery, we hypothesized that participants who did not endorse an abstinence goal would be more likely to choose an alternative treatment option rather than return to IOP. We also expected that participants' treatment choices would be in line with their initial treatment

preferences and efficacy expectations. That is, that those who stated strong preferences for specific alternative treatments when assessed shortly after intake would choose them instead of IOP when given the choice. Similarly, we hypothesized that participants would be more likely to choose treatments that they had previously rated as highly likely to help them manage their addictive behaviors.

While we were primarily interested in the relationships between certain variables assessed at baseline and treatment choice, and between treatment choice and subsequent attendance, we also considered the possibility that baseline variables would be directly related to attendance subsequent to the outreach call. Furthermore, we considered the likely possibility that there might be important differences between participants who failed to engage in treatment within the first 2 weeks and those who engaged early but then dropped out in weeks 3-8, and that disengagement time frame might moderate the hypothesized relationships between baseline variables and choice or between choice and subsequent attendance. See Figure 1 for a summary of the hypothesized relationships among variables.

To summarize our hypotheses:

1. A majority of participants will choose treatments other than IOP when given a choice
2. Women will be more likely to choose an alternative treatment than men
3. Participants who did not endorse an abstinence goal will be more likely to choose an alternative treatment than participants who did endorse an abstinence goal
4. Participants will be more likely to choose treatments they previously endorsed as preferable and effective
5. Participants who choose alternative treatments will have higher rates of subsequent attendance than those who choose IOP
6. Disengagement time frame may moderate the relationships outlined above.

METHOD

Participants

Participants were 137 adults enrolled between October 2008 and April 2012 in two concurrent studies of adaptive approaches to re-engaging patients who disengaged from intensive outpatient treatment for substance dependence within eight weeks of treatment entry. One study enrolled 300 cocaine-dependent patients and the other enrolled 200 alcohol-dependent patients. Otherwise, eligibility criteria and procedures were identical. The adaptive treatment studies were approved by the Institutional Review Boards of the University of Pennsylvania and the Philadelphia Veterans Affairs Medical Center.

In addition to a DSM-IV diagnosis of alcohol or cocaine dependence and use within the past three months, eligibility criteria included willingness to participate in research and be randomly assigned; age between 18 and 65; no psychiatric or medical condition that

precluded outpatient treatment; no regular opiate use within the past 12 months; 4th grade reading level; and minimal housing stability (i.e., not living on the street). To facilitate research follow-up, participants had to provide contact information for at least two contacts. Three potential participants who were court-mandated to attend treatment were excluded because it could limit their ability to select among the treatment options offered.

Recruitment sites

Participants were recruited when they entered treatment at one of two IOPs, both of which treated both alcohol and cocaine dependence. One was a community-based program serving patients in a publicly-funded urban treatment system, and one was a Veteran's Affairs Medical Center program. Patients in the community program could self-refer directly to the program, or they could be referred from inpatient programs or from a walk-in assessment or crisis center. Patients in the VA program were self-referred or referred by other VA medical, mental health, or human service programs from which they were already receiving services. In both programs, patients were determined to meet admission criteria for IOP according to Pennsylvania's Client Placement Criteria for Adults (Pennsylvania Department of Drug and Alcohol Problems, 1999) before completing the intake process. The remainder of the intake was typically completed the same day at the community IOP, but often involved a wait of to 2-4 weeks at the VA IOP before attending a group or individual orientation session.

The community program provided approximately 9 hours per week of group treatment. The VA program was more flexible, but also provided up to 9 hours per week of group treatment. Patients could typically attend both programs for 3-4 months, but were usually stepped down to less frequent visits after 6-8 weeks at the VA. Treatment at both sites was grounded in a 12-step philosophy. Much of the content focused on the nature of substance misuse as a disease, overcoming denial, and the importance of self-help participation, supplemented by psychoeducational groups on a range of topics such as anger management, life skills, and gender-specific issues. Patients had access to individual counseling at least monthly at both sites. Additional services varied between programs, but concerns such as education, general medical problems, and mental health supports were usually addressed through referrals to other services.

Procedures

Patients were screened at or shortly after their first IOP treatment visit; that is, the intake assessment at the community program or the orientation session at the VA program. Eligible participants provided informed consent and completed a baseline assessment session with a research interviewer. Participant attendance was then tracked for 12 weeks. The treatment arms of the adaptive treatment studies are illustrated in Figure 2. Participants were included in the current analysis if they disengaged from treatment during the first 8 weeks and were randomized to the patient choice treatment condition.

Participants who failed to engage in IOP by the 2-week point, or who were engaged in IOP at two weeks but disengaged during weeks 3-8, were randomly assigned to one of two 2-session telephone-based MI interventions. The first focused on re-engaging participants in IOP and the second offered participants their choice of four treatments as described earlier.

Alternative treatments were provided by clinical staff affiliated with the research center. The telephone outreach intervention was provided by 3 master's-level counselors and 2 Ph.D.-level clinical psychologists affiliated with the research center, all of whom had prior experience in treatment of substance misuse. Counselors received 2 days of workshop training in MI and weekly group supervision addressing the full range of implementation issues, including MI skills. All calls were recorded. Counselors made up to 3 attempts to reach disengaged participants at their last known phone number.

In both treatment conditions, the therapist opened the dialogue by introducing him/herself, orienting the participant to the purpose of the call, and determining whether the participant could talk at that time. If the participant agreed to talk, the therapist then selected from a menu of strategies to increase motivation to return to treatment, identify and resolve barriers to treatment participation, and obtain commitment to re-engaging in IOP or engaging in the patient's choice of alternate treatments. Whether or not the participant committed to treatment attendance by the end of the call, the therapist offered a follow-up call up to one week later to check in and continue building motivation or troubleshooting as needed.

Consistent with an MI approach, the style and “spirit” of the intervention was emphasized over specific techniques or strategies. However, a typical call included discussion of the reasons the participant sought and discontinued treatment; the participant's current intentions regarding alcohol and drug use with a focus on increasing motivation to achieve or maintain abstinence; the participant's thoughts about what might be most helpful at this time; and troubleshooting practical barriers to treatment. In the patient choice condition, treatment options were presented during the first call, after initial discussion of the participant's alcohol and drug use intentions and reasons for entering and disengaging from treatment, with an effort made toward tailoring the message to the patient's stated needs and barriers. When presenting treatment alternatives, the outreach counselors briefly described each treatment option, including where, how, and for what duration treatment would be provided and key features of each approach. Counselors elicited participant questions about the treatment options and provided additional information upon request.

Fifty-seven initial MI outreach calls of at least 5 minutes' duration (26 IOP reengagement only and 31 patient choice; representing 30% of the 190 patients contacted across both treatment conditions) were rated for MI fidelity using the Motivational Interviewing Treatment Integrity Scales version 3.1.1 (MITI; Moyers et al., 2010). On average, MITI scores met or exceeded Basic Competency thresholds (Moyers et al., 2010). There were no differences between treatment conditions on any of the MITI global scales, behavior count ratios, or underlying behavior counts, with one exception: the frequency of giving information, a behavior count that is not assigned a threshold level nor included in any of the behavior count ratios reflecting MI fidelity. On average, therapists gave information 6.1 ($SD = 4.6$) times in IOP reengagement only calls, whereas in patient choice calls, they gave information 9.4 ($SD = 4.9$) times, $t(55) = -2.60$, $p = .01$.

Measures

Demographic data and prior alcohol and drug treatment history were collected by the research interviewer at baseline.

Diagnosis of alcohol and cocaine dependence were assessed at baseline using the relevant sections of the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002), a semi-structured interview developed to assess DSM-IV Axis I disorders. Participants were considered to have “current” alcohol or cocaine dependence if their symptoms occurred during the month prior to entrance into IOP.

Commitment to abstinence was measured at baseline with a modified version of the Thoughts About Abstinence Scale (TAA; Hall, Havassy, & Wasserman, 1990; Hall, Havassy, & Wasserman, 1991). The TAA was originally adapted from a structured interview intended to assess various determinants of relapse among smokers (Marlatt, Curry, & Gordon, 1988). Our version consisted of a single self-report item asking the participant to endorse one of the following treatment goals: complete abstinence, abstinence with the possibility of slips, occasional use, temporary abstinence, controlled use, or no goal. Neither the TAA nor its predecessor measure have published psychometric properties; however, this single item, treated as a dichotomous variable, has been predictive of substance use outcomes among patients in treatment for alcohol, opiate, nicotine, and cocaine dependence (e.g., Hall, Havassy, & Wasserman, 1990; Hall, Havassy, & Wasserman, 1991; McKay, Merikle, Mulvaney, Weiss, & Koppenhaver, 2001; McKay et al., 2013; Mensinger, Lynch, TenHave, & McKay, 2007). Given the measure's demonstrated predictive validity regarding clinically relevant outcomes in treatment-seeking substance-dependent populations, we chose to include it in the present study despite the inherent limitations of a single-item measure. Preliminary analyses indicated that most of our participants chose a goal of complete abstinence; therefore, we followed the precedent established by Hall and colleagues (Hall, Havassy, & Wasserman, 1990; Hall, Havassy, & Wasserman, 1991) of treating commitment to abstinence as a dichotomous variable.

Treatment preferences and efficacy expectations were measured at baseline with the Treatment Preference Questionnaire (TPQ; Oslin, 2007). The TPQ was developed by a panel of experts in addiction treatment research who were interested in assessing patients' preferences and expectations regarding treatment options. Their aim was to assess and record patients' global preferences and efficacy expectations evoked by each treatment type; therefore, brevity and face-validity were valued over the internal consistency that might have been obtainable in a measure that included more items (D. Oslin, personal communication, October 14, 2013). In the present study, this measure provided a means to collect data pertinent to the clinically pragmatic question of whether patients' stated preferences and efficacy expectations regarding a variety of treatment types at intake would in fact have any bearing on their later selection from among treatments offered 2-8 weeks later. The TPQ includes 5-point scales assessing preference for and perceived helpfulness of each of the following treatment types: IOP, individual psychotherapy, medication to reduce cravings, and 12-step groups. Participants rated preference and efficacy for all 4 treatment types. The preference scale includes anchors of “strongly prefer to use this treatment” at one extreme, “no preference” at the midpoint, and “strongly prefer not to use this treatment” at the other extreme. The efficacy expectation scale includes anchors of “this treatment is highly likely to help me manage my alcohol and/or drug misuse” at one extreme, “this treatment may or may not help me” at the midpoint, and “this treatment is not likely to help me manage my alcohol and/or drug misuse” at the other extreme.

Engagement status was determined by obtaining the participant's attendance record from the IOP weekly for 8 weeks following the point at which the participant was determined to have entered treatment. This was the intake visit for the community program, and the orientation session for the VA program. Community program participants were categorized as disengaged at the 2-week point if they failed to attend at least 2 scheduled group sessions during their second week of treatment. VA program participants were categorized as disengaged at the 2-week point if they failed to attend their first 2 scheduled sessions after recruitment. Participants who were engaged at 2 weeks were categorized as having disengaged during weeks 3-8 if they failed to attend their scheduled group sessions for two consecutive weeks.

Treatment attendance subsequent to the telephone intervention was determined from IOP attendance records and attendance records from the alternative treatments provided by study-affiliated clinical staff to participants who chose them. Attendance was tracked for 12 weeks following intake to IOP.

Participant treatment choices – that is, treatments selected by disengaged participants after being offered alternatives during the telephone intervention – were recorded by the outreach counselor after completion of the telephone intervention.

Data analysis

First we compared the two adaptive study populations on key characteristics that would help to determine whether data from the studies could be combined for the present analyses. These characteristics included substance use diagnosis, disengagement rates, and participants' treatment choices. These preliminary findings, which are presented in the results section, led us to combine data from the two adaptive studies for all further analyses.

Our main analyses examined whether a set of baseline characteristics were related to later events in the study. We included the variables for which we had explicit hypotheses as well as those that represented potentially meaningful demographic and clinical variability in our population in an effort to be as conservative as possible when making generalizations about our findings related to our hypotheses. These variables comprised age, gender, site, study (alcohol vs. cocaine), current diagnosis of alcohol or cocaine dependence, abstinence goal at start of treatment, treatment preferences, and treatment efficacy expectations. We used logistic regression models to examine whether our set of baseline characteristics predicted early versus late disengagement, multinomial logistic regression models to examine whether treatment choices were related to the explanatory variables, and GEE logistic regression models to examine whether treatment attendance (characterized as attendance/no-attendance) after the choice point was related to the baseline variables. By including early versus late disengagement as an interaction term in the multinomial logistic models, we examined whether the relationships between baseline variables and treatment choice differed across levels of disengagement point. Finally, we used the GEE logistic regression models to examine whether rates of weekly treatment attendance after choice point were associated with choice, and with time of disengagement.

The response variable in these multinomial logistic models had five levels, corresponding to the four treatment options and the option of taking no treatment. Only two participants chose medication treatment, and only six chose telephone treatment. For detailed exploration of effect sizes in the multinomial regression, and the analyses of moderation by time of disengagement and of treatment attendance subsequent to the choice point, we therefore combined those who chose medication or telephone treatment together with those who chose CBT to form a group who chose any treatment other than IOP. Analyses limited to those who chose IOP, CBT, or No Choice yielded essentially similar results.

RESULTS

Preliminary comparison of the two adaptive treatment study populations

There was substantial diagnostic overlap between the populations of the two adaptive treatment studies, with 119 (60%) of the participants in the “alcohol” study meeting criteria for lifetime cocaine dependence, and 228 (76%) of the participants in the “cocaine” study meeting criteria for lifetime alcohol dependence. Disengagement rates in the two studies were nearly identical, with 77 of 200 (38.5%) of alcohol study participants disengaged at 2 weeks and 112 of 300 (37.3%) of cocaine study participants disengaged at 2 weeks, $\chi^2(1 N = 500) = 0.07, p = .79$. Among the participants who were engaged at week 2, rates of later disengagement were also comparable, with 30 of 123 initially engaged alcohol study participants (24.4%) and 54 of 188 initially engaged cocaine study participants (28.7%) disengaging between weeks 3-8, $\chi^2(1 N = 311) = 0.71, p = .40$.

Demographic and clinical characteristics

Of the 500 participants enrolled in the adaptive studies, 273 disengaged during the first 8 weeks of treatment; of those, 137 were randomized to patient choice. The sample includes 96 patients who were classified as disengaged at 2 weeks after treatment entry, and 41 patients who disengaged during weeks 3-8 after treatment entry. Participants were on average 47.8 ($SD = 9.6$) years old. 80% were male and 88% were African-American. Most (74%) had 12-15 years of education. Most reported being either unemployed ($N = 63, 46\%$) or unable to work ($N = 56, 41\%$). At baseline, 115 (84%) participants had lifetime alcohol dependence and 116 (85%) participants had lifetime cocaine dependence; 81 (59%) had current alcohol dependence and 86 (62.8%) had current cocaine dependence. Sixty participants (44%) had both current alcohol and cocaine dependence. Most ($N = 116, 84.7\%$) had prior treatment experience, averaging 2.85 ($SD = 5.2$) prior treatments for alcohol problems and 3.01 ($SD = 3.6$) prior treatments for drug problems. As a group they were roughly comparable to participants in our prior studies of continuing care and broadly representative of patients enrolled in local publicly-funded and VAMC IOP for alcohol and/or cocaine dependence (McKay et al., 2010; McKay et al., 2013). Sixty-five participants, 20 from the alcohol study and 45 from the cocaine study, were enrolled in the community treatment program and 72 participants, 34 from the alcohol study and 38 from the cocaine study, were enrolled at the VA program.

Treatment choices

Ninety-six participants (70.1%) were reached by phone for an MI call. A logistic regression model showed that current alcohol diagnosis was significantly associated with being reached ($\chi^2(1, N = 137) = 3.96, p = .047$), with p -values for the other explanatory variables all exceeding $p = 0.10$. Among our $N = 137$ sample, 77% of participants with a current alcohol dependence diagnosis received at least 1 MI call, whereas 61% of participants without a current alcohol dependence diagnosis received at least 1 MI call. Median time from determining that the participant was disengaged to the first successful contact, among those successfully reached for at least one call, was 4 days ($M = 7.98, SD = 9.70$). Forty-eight participants (50%) of those who completed one MI call were also successfully reached for a second call a median of 6.5 days after the first call ($M = 8.04, SD = 5.54$).

Among the 96 participants who were successfully reached for at least one MI call, 18 participants (18.8%) did not choose one of the four treatments offered in the study. Reasons for rejecting treatment were not systematically collected, but anecdotally-reported reasons included work or other time conflicts, receiving adequate recovery support through self-help or church involvement, and lack of interest in resuming treatment. Forty-seven participants (49%) chose to return to the IOP from which they had disengaged, 23 (24.0%) chose CBT, 6 (6.3%) chose telephone-based counseling (TEL), and 2 (2.1%) chose medication (MED). 87.5% of participants who were reached for two calls chose one of the four treatments offered and 75% of participants who were reached for only one call made a choice, $\chi^2(1, N = 96) = 2.46, p = .12$. Treatment choices among those who made a choice did not differ by number of MI calls completed, $\chi^2(3, N = 78) = 2.46, p = .48$.

Relationships between explanatory variables and study behaviors

Early versus late disengagement—From the set of baseline variables, only stated preference for IOP showed a significant relationship with early (week two) versus late (weeks three through eight) disengagement, $\chi^2(1, N = 137) = 4.49, p = 0.03$. The rates of early disengagement were 76.25% for participants with a “strong” preference for IOP, versus 61.40% for those with any other response, i.e., a less-than-strong preference for IOP, $OR = 2.73, 95\% CI = (1.06, 7.04)$. No other variable had an entry p -value below 0.10, and p -values for entry of other variables to the model including preference for IOP were all above 0.17. Time on the waitlist, for participants at the VA IOP, was not available to include as a possible predictor of time to disengagement.

Treatment Choices—For all of the subsequent analyses, only the 96 participants who received at least one MI call were included.

The distribution of participants’ treatment choices by the explanatory variables is summarized in Table 1. A multinomial logistic regression model predicting 5-level treatment choice from the explanatory variables showed that only program, i.e., recruitment site, was significantly associated with choice, $\chi^2(4, N = 96) = 17.75, p = 0.001$; the p -values associated with the other explanatory variables all exceeded 0.10. The primary difference was that 94.44% of participants in the VA IOP made a choice, while only 64.29% of the participants in the community-based IOP made a choice. A multinomial logistic regression

model restricting to the 78 participants who made a choice showed no significant associations between choice and the explanatory variables ($p > 0.14$ for all variables).

Effect sizes for relationship between baseline variables and treatment choices

—To address the concern that our negative findings might represent a lack of power to detect relationships between explanatory variables and subsequent choices, we examined the effect sizes of those comparisons. A multinomial logistic regression can be regarded as a set of simultaneous binomial logistic regressions. In our case, we have five possible responses: No Choice, IOP, CBT, TEL, and MED. Very few people chose TEL or MED, so we combined them with CBT into a Non-IOP category, yielding three options. The multinomial logistic regression for these three options corresponds to two simultaneous logistic regressions. To get a sense of the effects of the various baseline measures on choices, we start by examining their effects on IOP versus No Choice, and then IOP versus Non-IOP. A multinomial logistic will combine these two descriptive analyses into one formal analysis.

As indicated in Table 2, when examining the odds ratios for IOP versus No Choice, the only explanatory variable for which there is a significant finding, i.e., the 95% confidence interval does not include the value 1, is program. However, gender, abstinence goal, and efficacy expectation for medication all have odds ratios over 2, so we will look at them in more detail.

As may be seen in Table 1, roughly equal numbers of community IOP participants chose IOP versus No Choice, whereas most VA participants chose IOP versus No Choice. Males are also more likely to choose IOP rather than No Choice, which is most likely confounded with program as most VA participants are male. Those who disengaged at the 2-week point were more likely to choose IOP relative to No Choice than those who disengaged between weeks 3-8. Participants with complete abstinence as a goal were less likely to choose IOP relative to No Choice relative to participants who stated a goal other than complete abstinence. Finally, those who thought that medication was highly effective were less likely to choose IOP relative to No Choice than those who rated medication as less than highly effective.

In a similar analysis comparing the choice of IOP to Non-IOP (i.e., CBT, TEL, and MED), the odds ratios listed in Table 2 indicate that the effects are smaller, with no significant results and only 2 explanatory variables with odds ratios of at least 2: abstinence goal and preference for individual psychotherapy. As outlined in Table 1, participants whose stated goal was abstinence were less likely to choose IOP relative to Non-IOP than those who stated a goal other than abstinence. Combined with the previous analysis, participants who did not have abstinence as their goal favored return to IOP over either No Choice or Non-IOP alternative treatments. Participants with a strong preference for individual psychotherapy were less likely to choose IOP relative to Non-IOP than those who did not state a strong preference for individual psychotherapy.

In terms of the overall multinomial analysis, we are unlikely to see many variables having an overall effect, as only abstinence goal shows up in both comparisons, and only program has a large effect in at least one. The one-at-a-time score tests for inclusion in the multinomial

logistic on the 3-level response of No Choice, IOP, Non-IOP are outlined in Table 3. Consistent with the previous analyses, only program has a significant enough effect to be included in the model. Based on the two sets of analyses from above, we know that only abstinence goal had an odds ratio of more than 2 in each of the binary logistic comparisons. Referring again to Table 1 for the counts of participants who made each choice, we see a preponderance of IOP choices in the VA, compared to a more even distribution of IOP, Non-IOP alternatives taken together, and No Choice at the community IOP.

Now we consider a power analysis to estimate the type of effects that we might expect to see significant in a study of this type. We focus on the separate comparisons of IOP versus No Choice and versus Non-IOP, so we use an odds ratio as a measure of effect of binary factors on a binary outcome. The factors that affect the power for an odds ratio include the sample size, the base-rate of the event of interest (i.e. choice of IOP), and the proportions of the sample in the different levels of the binary factor.

For our data, the distributions of subjects in the levels of the binary factors ranged from (40%, 60%) to (80%, 20%), while the base rates for events ranged from 10% to 40%. Based on these numbers, and the average sample size of 70 for each of the individual logistic regressions, our sample yields 80% power for odds ratios of 4 or higher, so the sample is underpowered for moderate effects. However, looking at the effects (i.e. the odds ratios) in the two sets of comparisons, we see that most of the odds ratios are between 1 and 2, and so are small to moderate effects.

Disengagement time and treatment choices—We also tried to examine whether the relationships between the baseline variables and choice of IOP, Non-IOP, or No Choice differed for early versus late disengagers. Each interaction was evaluated in a separate multinomial logistic regression model. The models all included age, gender, current cocaine dependence, current alcohol dependence, program, study, and abstinence goal as covariates, together with the main effect of disengagement time. To evaluate the interaction of a variable, that variable's main effect was included, and its interaction with disengagement time.

The interaction terms for early versus late disengagement with the baseline variables were almost all nonsignificant ($p > 0.14$) with the exception of preference for individual psychotherapy, $\chi^2(2, N = 96) = 6.24, p = 0.04$, and efficacy expectation for individual psychotherapy, $\chi^2(2, N = 96) = 6.90, p = 0.03$. Preference and efficacy expectation for individual psychotherapy were strongly related, $\chi^2(1, N = 96) = 39.25, p < 0.0001$, so the two effects taken together appear to represent a single interaction between attitudes toward individual psychotherapy and disengagement time on choice. As outlined in Table 4, early disengagers with more positive attitudes toward individual psychotherapy appeared to be more likely to choose a Non-IOP alternative, whereas those with less positive attitudes toward individual psychotherapy were more likely to choose IOP or No Choice. There was no such relationship evident among our small sample of participants who disengaged later.

Post-choice treatment attendance—Attendance in the 4-week period subsequent to the first MI call is outlined in Table 5. The raw attendance figures suggest that the IOP group

makes more visits than either of the other two groups; unsurprisingly, more than half of the No Choice group made no visits at all. It is perhaps more surprising that 7 of 18 participants who declined to make a choice returned to treatment at least once in the subsequent 4 weeks. It should be noted that the maximum visit figure of 11 for Non-IOP represents a single participant who chose MED and most likely also resumed IOP attendance. None of the other Non-IOP participants made more than 6 visits in 4 weeks. These summaries are somewhat misleading, as IOP patients were expected to make more visits than those receiving CBT, TEL, or MED: two to three per week as opposed to one or two. Therefore, for further analysis we defined a binary weekly attendance variable which indicates whether a person made at least one visit that week; overall percent of attendance weeks by choice is also presented in Table 5.

When comparing those who chose IOP, Non-IOP, or No Choice, it appears that those who chose IOP or Non-IOP had greater overall attendance; however, when controlling for baseline characteristics, there were no main effects of either choice ($GEE \chi^2(2, N=96) = 0.80, p = 0.65$) or time of disengagement ($GEE \chi^2(1, N=96) = 2.66, p = 0.10$) on the rates of subsequent attendance. Examining the effect sizes more closely, the odds of a participant who chose IOP having a “good” attendance week are 1.27 times the odds for Non-IOP ($p = 0.51$); the odds of a Non-IOP participant having a “good” attendance week are 1.26 times the odds for No Choice ($p = 0.70$); and the odds of an IOP participant attending are 1.59 times the odds for No Choice ($p = 0.42$). The odds of early disengagers having good attendance weeks were 2.10 times the odds of late disengagers ($p = .08$), but the difference was not significant.

The interaction between choice and disengagement time was not significant ($GEE \chi^2(1, N=96) = 2.47, p = 0.29$), suggesting that the effects of choice on subsequent attendance do not differ across the early versus late disengagement groups. To check for the size of the effects, we now examine the effects for the six groups. Among the early disengagers, participants who chose IOP were most likely to attend, followed by those who made No Choice, followed by those who chose Non-IOP alternatives, but the effect of choice was not significant. For this group, the odds ratios for IOP versus Non-IOP were 1.77 ($p = 0.15$), for No Choice versus Non-IOP were 1.39 ($p = 0.67$), and for IOP versus No Choice were 1.27 ($p = 0.74$), so the effects are not large. Among those who disengaged after the 2-week point, those who chose Non-IOP were most likely to attend, followed by those who chose IOP, followed by those who made No Choice. Again, treatment choice had no significant effect on attendance. For this group, the odds ratios for Non-IOP versus IOP were 2.37 ($p = 0.28$), for Non-IOP versus No Choice were 4.85 ($p = 0.18$), and for IOP versus No Choice were 2.05 ($p = 0.52$). Here, the odds ratios are over 2, but we have a relatively small number of later disengagers, so power may be an issue here. If we accept the estimates at face value, then they suggest that the late disengagers who chose Non-IOP alternatives had higher rates of attendance than the other groups.

DISCUSSION

In this study, 137 alcohol- or cocaine-dependent patients who presented for treatment at IOP but failed to engage within the first two weeks or disengaged during weeks 3-8 of treatment

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were contacted by phone and offered alternate treatment options chosen to address common complaints about IOP. We hypothesized that participants would be more likely to select alternative treatments than IOP, and that those who selected alternative treatments would be more likely to attend treatment subsequent to the outreach intervention. We also hypothesized that women and participants who endorsed treatment goals other than abstinence would be more likely to choose alternatives to IOP, and that participants' treatment choices would be consistent with their previously-stated treatment preferences and efficacy expectations. We also explored the relationship between variables assessed at baseline and time to disengagement, and the potential moderating effect of disengagement time on the relationships between our baseline explanatory variables and choice, and between choice and subsequent attendance.

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Among 96 patients successfully reached, the most commonly selected option was return to the IOP from which the participant had disengaged. Only 31 participants eligible for alternative treatments chose a treatment other than IOP, and those participants were no more or less likely to attend at least one treatment session in the 4 weeks subsequent to their first MI call than those who chose IOP. We were unsuccessful at reaching 29% of participants who had agreed to be contacted as little as 2 weeks prior to the first outreach effort, illustrating the practical difficulty of implementing this common-sense approach to re-engaging patients in IOP. A small number of patients who declined to make a choice subsequently returned to treatment, further illustrating the rapidly shifting motivational landscape faced by patients in early recovery from alcohol and drug dependence. It is likely that these patients experienced an increase in intrinsic or extrinsic motivational factors or a decrease in pragmatic barriers that may have contributed to their disengagement. This is consistent with other research on treatment disengagers in which some of the sample re-engaged during the study period even without any re-engagement intervention (Coulson et al., 2009).

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Our data provided very limited support for our hypotheses regarding the relationship between baseline characteristics and treatment choices made upon disengagement: gender, treatment preferences, and treatment efficacy expectations assessed at baseline were generally not associated with subsequent choice. While we did not find a significant effect of abstinence goal on choice, examination of the effect sizes suggested that those who endorsed a goal of other than complete abstinence were more likely to choose IOP than alternative treatments or No Choice. Among those who disengaged at the 2-week point, those with positive attitudes toward individual psychotherapy at baseline were more likely to choose Non-IOP treatments than those with less positive attitudes toward individual psychotherapy; however, nearly half of that group did not choose an individual treatment when given the opportunity to choose.

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The two recruitment sites differed in the proportion of participants who declined to choose one of the study treatments. This may reflect differences in patient population readiness for change, preference for formal treatment, perception of community recovery supports, or willingness to refuse treatment offered by the telephone counselor. It may also reflect the fact that the usual procedure for accessing specialty services at this VA medical center often involved a call from the medical center to the patient; therefore, the process of receiving an

outreach call during which treatment options were discussed may have been more familiar to VA patients. Despite what may be important differences in patient population and setting, there were no site differences in treatment choice among participants who made a choice.

We had no specific hypotheses regarding treatment choices made by participants who were disengaged at the 2-week point versus those who disengaged between weeks 3-8. Nonetheless, we examined possible clinical differences between those groups as well as possible group differences in the patient characteristics we hypothesized to be associated with later treatment choices in order to be sure we were not obscuring an important distinction. For example, early disengagement may actually represent failure to engage in treatment at all, whereas later disengagement may represent patient self-assessment as having improved to the point of no longer needing treatment. A detailed analysis of these differences was beyond the scope of the present paper, and indeed, we did not assess possibly relevant factors such as therapeutic alliance or concurrent alcohol and drug use. Therefore we were unable to distinguish between premature disengagement and appropriate termination due to rapid treatment gains. We did find that a stated preference for IOP at baseline was associated with disengagement time frame; those with a strong preference for IOP were more likely to disengage in the first 2 weeks than those who endorsed a less-than-strong preference for IOP. This counterintuitive finding may indicate that a strong preference for IOP reflects awareness of substantial service needs that may unfortunately present practical barriers to initial treatment engagement. Further research in a sample that includes both engaged and disengaged patients would be needed to determine whether this may represent a clinically meaningful characteristic of treatment-seeking patients who state a strong preference for IOP; furthermore it is important to remember that most patients who disengaged did so within the first 2 weeks regardless of treatment preferences.

Further research is needed to determine whether, counter to our hypothesis, a stated goal of complete abstinence is truly associated with choices other than IOP when offered upon disengagement. If this finding were to hold up, it might provide further evidence that those who struggle most with their addiction choose more intensive treatment despite their demonstrated difficulty in engagement and participation.

Contrary to our hypothesis, there was no main effect of treatment choice on subsequent attendance when controlling for baseline variables. There was a near-significant finding suggesting that early disengagers had higher rates of subsequent attendance than later disengagers regardless of what they chose, providing support to the notion that later disengagement may represent the end of the treatment episode from the patient's perspective, whether because of improvement, relapse, or other factors.

In our exploratory analyses of disengagement time frame as a moderator of the relationship between treatment choice and explanatory variables assessed at baseline, our only significant finding was that positive attitudes toward individual psychotherapy were related to treatment choice only among early disengagers; even among that group, fewer than half chose individual treatment when offered a choice. When examining disengagement time frame as a moderator of the relationship between choice and subsequent attendance, we had no significant findings. However, when examining the effect sizes, we found that among early

disengagers, choice of return to IOP was associated with highest rates of attendance, while among late disengagers, choice of CBT was associated with higher rates. This could provide some support for the idea that being disengaged at 2 weeks represents failure of initial engagement and that renewed commitment to treatment is most fruitful, whereas later disengagement may represent dissatisfaction with treatment among at least some who may welcome an opportunity to try another approach. Given the limitations of our sample size to detect significant relationships, further research is needed in order to conclude definitively that patients who disengage from IOP within the first two weeks of treatment are likely to respond differently to an offer of alternative treatments from those who disengage in weeks 3-8 of a planned 3-4 month course of treatment.

Relative to the other options assessed, medication was viewed as less preferable and less effective, and indeed was selected by only 2 participants of 96 reached. Other authors have argued that medications are underutilized in substance misuse specialty treatment (Harris, McKellar, Moos, Schaefer, & Cronkite, 2006; Saxon & McCarty, 2005), perhaps because they are largely unavailable or because health care providers are unaware of them (Bradley & Kivlahan, 2014; Knudsen, Abraham, & Oser, 2011; Roman, Abraham, & Knudsen, 2011). Advocates suggest that making medication more readily available will help engage patients who could benefit from adjuncts or alternatives to traditional IOP (Department of Veterans Affairs/Department of Defense, 2009; National Quality Forum, 2007). In our study, the barrier of availability was removed, and yet very few participants chose medication. While we did not collect data on reasons for selecting or rejecting the treatment options offered, one possible reason for the low selection of medication may be that there are currently no available pharmacotherapies for cocaine dependence, and therefore medication was only available to help patients avoid alcohol use. Even though most of the cocaine-dependent patients in the study had a history of alcohol dependence, participants who sought treatment primarily for cocaine problems were unlikely to choose the medication offered in the study. In other words, our participants' perception of medication as not particularly helpful in most cases may have been accurate. Another possible reason for the infrequent selection of medication may be that most participants had attended 12-Step peer support groups, either as part of their formal treatment experience or independently, where few members actively support the use of medication for drinking problems, and a substantial minority may actively oppose it (Rychtarik, Connors, Dermen, & Stasiewicz, 2000; Tonigan & Kelly, 2004). Finally, participants had originally sought psychosocial treatment, and even those who felt that they might benefit from medication may still have wanted primarily psychosocial treatment. A few participants expressed interest in receiving medication as an adjunct, not an alternative, to IOP. In those cases, participants were referred to an appropriate provider within the system with which their program was affiliated.

Our main finding was that even when offered what were anticipated to be attractive psychosocial and biomedical treatment alternatives, disengaged participants mostly chose to return to IOP. One possible reason was that they already "chose" IOP by presenting for treatment there, and having gained familiarity with and allegiance to the program, were disinclined to accept treatment offered at a different site. In addition, IOP had been authoritatively recommended to each participant during the assessment and intake process, whereas the treatment options were presented in a more dispassionate manner by a counselor

affiliated with the research site, not the treatment program. Furthermore, the treatment philosophy at both sites emphasized the importance of setting aside one's own judgment in favor of following the suggestions of the counselor and group (Nowinski, Baker, & Carroll, 1994). Finally, a telephone call – particularly from someone with whom the patient may have had no prior contact – may not be the best way to present and consider a range of complex choices, so participants tended to stick with the most familiar choice.

This study fills several gaps in the literature on patient preference and patient-centered treatment of substance use disorders. It represents a “trialable” (Rogers, 1995) application of adaptive care that leaves existing treatment services intact for the approximately 50% of patients who successfully engage in treatment as usual while addressing the serious problem of early disengagement. Our data represent actual treatment choices made by patients after disengaging from real-world treatment settings, rather than hypothetical preferences as in most prior studies, and include both stated choices and observed attendance. While the adaptive treatment studies were not powered to address all of our hypotheses in the present paper, a detailed examination of effect sizes observed in our main analyses suggests that overall we were unlikely to have missed large effects due to having an underpowered sample.

This study shares an important weakness with other studies of treatment preference in that the specific choices offered were idiosyncratic and may limit generalizability. It is possible that another constellation of alternative treatments may have been more attractive to our participants. Another weakness is our relatively homogeneous population – mostly middle-aged, male, African American, and low-income – which limited our ability to assess demographic correlates of patient choices. By undertaking a secondary analysis of data collected in a study designed to answer other questions, we were limited in our power to determine whether some apparent findings were significant despite the large sample recruited. We were also limited by the set of measures included in the adaptive treatment studies; the larger studies’ aim of having a minimally-intrusive data collection process may have limited our ability to detect more subtle indicators predictive of choices and later attendance. While the single-item TAA has demonstrated predictive validity in other contexts, it may not have been the best assessment of “fit” between patient goals and treatment programs in this study. The TPQ includes only a single preference and efficacy item for each treatment type, and did not include items regarding telephone counseling, which limited our ability to determine whether preference for or perceived effectiveness of this modality was associated with later choices. Finally, it is worth noting that some of these characteristics, particularly commitment to abstinence, may have changed between baseline assessment and post-disengagement outreach.

From a clinical perspective, our findings suggest that systematic efforts to track IOP attendance and contact patients promptly upon disengagement may result in a majority of patients expressing a willingness to return to treatment, but that there may be wide variations in response based on site or patient characteristics not identified in this study. Further research is needed to determine the circumstances under which systematic tracking and outreach are likely to be successful.

We attempted to implement a patient-centered approach to re-engaging treatment dropouts by offering a range of treatment options that we hoped would provide a better fit to their individual preferences and circumstances than a highly structured IOP. An optimistic interpretation of our findings is that offering more choices to patients who present for IOP does not necessarily mean that existing treatment services will suffer greatly from loss of patients to alternative choices, or that substantial resources will need to be diverted to developing those alternatives. For example, our experience revealed that about 20% of disengaged IOP patients could be re-engaged by offering individual outpatient treatment, but very little re-engagement resulted from offering stand-alone telephone counseling or medication management. Programs wishing to broaden their menu of options as a strategy to retain patients would be well-advised to pilot-test options and devote resources toward developing only those that result in additional re-engagement.

If a measure of the success of this adaptive approach to re-engaging patients in treatment is the number of participants who chose one of the alternative treatments, then a clinical implication of our findings is that having outside staff offer alternatives to patients after they disengage from IOP is unlikely to reap the purported benefits of patient-centered care. It is possible that involving program staff in offering alternatives, building collaborative decision-making earlier into the process, or offering medication as an adjunct – rather than an alternative – to psychosocial treatment, might be more promising means to engage patients who present to IOP but might be better served by a different treatment modality. Further research will determine whether offering choices to patients who present for IOP helps to prevent early disengagement. Additional research, including the findings of the adaptive treatment studies from which the present data were drawn, will also determine whether efforts to increase the options available to patients seeking treatment for substance use disorders are ultimately more productive than simply reaching out to patients who fail to engage early in treatment.

ACKNOWLEDGEMENTS

This research was supported by NIDA grants P60-DA-05186 and K24 DA029062, NIAAA grant P01-AA016821, and by the Department of Veterans Affairs.

There was no involvement of a pharmaceutical company in funding this research. The sponsors played no role in preparation of this article. There was no medical writing or editorial assistance with the preparation of this article.

References

- Adamson SJ, Sellman DJ, Dore GM. Therapy preference and treatment outcome in clients with mild to moderate alcohol dependence. *Drug and Alcohol Review*. 2005; 24(3):209–216. [PubMed: 16096124]
- Bradley KA, Kivlahan DR. Bringing patient-centered care to patients with alcohol use disorders. *Journal of the American Medical Association*. 2014; 311(18):1861–1862. [PubMed: 24825640]
- Anton RF, O'Malley SS, Ciraulo DA, Cisler RA, Couper D, Donovan DM, et al. Combined pharmacotherapies and behavioral interventions for alcohol dependence. *Journal of the American Medical Association*. 2006; 295(17):2003–2017. [PubMed: 16670409]
- Brown TG, Seraganian P, Tremblay J, Annis H. Matching substance abuse aftercare treatments to client characteristics. *Addictive Behaviors*. 2002; 27:585–604. [PubMed: 12188594]

- Center for Substance Abuse Treatment. Substance abuse treatment: Addressing the specific needs of women. 2009
- Coulson C, Ng F, Geertsema M, Dodd S, Berk M. Client-reported reasons for non-engagement in alcohol and drug treatment. *Drug and Alcohol Review*. 2009; 28(4):372–378. [PubMed: 19594791]
- Curran GM, Stecker T, Han X, Booth BM. Individual and program predictors of attrition from VA substance abuse treatment. *Journal of Behavioral Health Services and Research*. 2009; 36(1):25–34. [PubMed: 18188705]
- Department of Veterans Affairs/Department of Defense. VA/DoD clinical practice guideline for management of substance use disorders (SUD). Department of Veterans Affairs/Department of Defense; Washington, DC: 2009.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition. (SCID-I/P). Biometrics Research, New York State Psychiatric Institute; New York: 2002.
- Gelhorn HL, Sexton CC, Classi PM. Patient preferences for treatment of major depressive disorder and the impact on health outcomes: A systematic review. *The Primary Care Companion for CNS Disorders*. 2011; 13(5)
- Graff FS, Morgan TJ, Epstein EE, McCrady BS, Cook SM, Jensen NK, et al. Engagement and retention in outpatient alcoholism treatment for women. *The American Journal on Addictions*. 2009; 18(4):277–288. [PubMed: 19444731]
- Hall SM, Havassy BE, Wasserman DA. Commitment to abstinence and acute stress in relapse to alcohol, opiates, and nicotine. *Journal of Consulting and Clinical Psychology*. 1990; 58(2):175–181. [PubMed: 2335634]
- Hall SM, Havassy BE, Wasserman DA. Effects of commitment to abstinence, positive moods, stress, and coping on relapse to cocaine use. *Journal of Consulting and Clinical Psychology*. 1991; 59(4):526–532. [PubMed: 1918556]
- Harris AHS, McKellar JD, Moos RH, Schaefer JA, Cronkite RC. Predictors of engagement in continuing care following residential substance use disorder treatment. *Drug and Alcohol Dependence*. 2006; 84(1):93–101. [PubMed: 16417977]
- Institute of Medicine. Improving the quality of health care for mental and substance-use conditions: Quality chasm series. National Academy of Sciences; Washington, DC: 2006.
- Kludt CJ, Perlmutter L. Effects of control and motivation on treatment outcome. *Journal of Psychoactive Drugs*. 1999; 31(4):405–414. [PubMed: 10681107]
- Knudsen HK, Abraham AJ, Oser CB. Barriers to the implementation of medication-assisted treatment for substance use disorders: the importance of funding policies and medical infrastructure. *Evaluation and Program Planning*. 2011; 34(4):375–381. [PubMed: 21371752]
- Lundahl BW, Burke BL. The effectiveness and applicability of Motivational Interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical Psychology*. 2009; 65(11):1232–1245. [PubMed: 19739205]
- Marlatt GA, Curry S, Gordon JR. A longitudinal analysis of unaided smoking cessation. *Journal of Consulting and Clinical Psychology*. 1988; 56(5):715–720. [PubMed: 3192787]
- McCrady BS, Epstein EE, Cook S, Jensen NK, Ladd BO. What do women want? Alcohol treatment choices, treatment entry and retention. *Psychology of Addictive Behaviors*. 2011; 25(3):521–529. [PubMed: 21644804]
- McKay JR. Continuing care research: What we have learned and where we are going. *Journal of Substance Abuse Treatment*. 2009; 36(2):131–145. [PubMed: 19161894]
- McKay JR, Alterman AI, McLellan AT, Snider EC, O'Brien CP. Effect of random versus nonrandom assignment in a comparison of inpatient and day hospital rehabilitation for male alcoholics. *Journal of Consulting and Clinical Psychology*. 1995; 63(1):70–78. [PubMed: 7896993]
- McKay JR, Merikle E, Mulvaney FD, Weiss RD, Koppenhaver JM. Factors accounting for cocaine use two years following initiation of continuing care. *Addiction*. 2001; 96(2):213–225. [PubMed: 11182866]
- McKay JR, Van Horn DHA, Oslin DW, Lynch KG, Ivey M, Ward K, et al. A randomized trial of extended telephone-based continuing care for alcohol dependence: Within-treatment substance use

- outcomes. *Journal of Consulting and Clinical Psychology*. 2010; 78(6):912–923. [PubMed: 20873894]
- McKay JR, Van Horn DHA, Rennert L, Drapkin ML, Ivey M, Koppenhaver J. Factors in sustained recovery from cocaine dependence. *Journal of Substance Abuse Treatment*. 2013
- McKay, JR.; Lynch, KG.; Van Horn, DHA.; Oslin, D.; Ivey, M. Sequential Multiple Assignment Randomized Trial (SMART) Adaptive Studies for Substance Use Disorders.. Paper presented at the Society for Clinical Trials meeting; Philadelphia, PA. 2014.
- Mensing J, Lynn, Lynch KG, TenHave TR, McKay JR. Mediators of telephone-based continuing care for alcohol and cocaine dependence. *Journal of Consulting and Clinical Psychology*. 2007; 75(5):775–784. [PubMed: 17907859]
- Miller, WR.; Rollnick, S. *Motivational Interviewing: Helping people change*. 3 ed.. Guilford; New York: 2012.
- Moyers, TB.; Martin, T.; Manuel, JK.; Miller, WR.; Ernst, D. Revised global scales: Motivational Interviewing Treatment Integrity 3.1.1 (MITI 3.1.1). University of New Mexico Center on Alcoholism, Substance Abuse, and Addictions; Albuquerque, NM: 2010.
- National Quality Forum. National voluntary consensus standards for the treatment of substance use conditions: Evidence-based treatment practices. National Quality Forum; Washington, DC: 2007.
- Nowinski, J.; Baker, S.; Carroll, K. Twelve step facilitation therapy manual. National Institute on Alcohol Abuse and Alcoholism; Rockville, MD: 1994.
- Oslin, D. Treatment Preferences Questionnaire. University of Pennsylvania and Philadelphia Veterans Affairs Medical Center; 2007.
- Rogers, EM. *Diffusion of innovation*. 5 ed.. Free Press; New York: 1995.
- Roman PM, Abraham AJ, Knudsen HK. Using medication-assisted treatment for substance use disorders: evidence of barriers and facilitators of implementation. *Addictive Behaviors*. 2011; 36(6):584–589. [PubMed: 21377275]
- Rychtarik RG, Connors GJ, Dermen KH, Stasiewicz PR. Alcoholics Anonymous and the use of medications to prevent relapse: An anonymous survey of member attitudes. *Journal of Studies on Alcohol*. 2000; 61:134–138. [PubMed: 10627107]
- Saxon AJ, McCarty D. Challenges in the adoption of new pharmacotherapeutics for addiction to alcohol and other drugs. *Pharmacology and Therapeutics*. 2005; 108(1):119–128. [PubMed: 16055196]
- Simpson DD, Joe GW, Brown BS. Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors*. 1997; 11(4):294–307.
- Sterling RC, Gottheil E, Glassman SD, Weinstein SP, Serota RD. Patient treatment choice and compliance: Data from a substance abuse treatment program. *American Journal on the Addictions*. 1997; 6(2):168–176.
- Swift JK, Callahan JL. The impact of client treatment preferences on outcome: a meta-analysis. *Journal of Clinical Psychology*. 2009; 65(4):368–381. [PubMed: 19226606]
- Tonigan JS, Kelly JF. Beliefs about AA and the use of medications: A comparison of three groups of AA-exposed alcohol dependent persons. *Alcoholism Treatment Quarterly*. 2004; 22(2):67–78.
- Walsh DC, Hingson RW, Merrigan DM, Levenson SM, Cupples A, Heeren T, et al. A randomized trial of treatment options for alcohol-abusing workers. *New England Journal of Medicine*. 1991; 325(11):775–782. [PubMed: 1870651]

Figure 1. Relationships among variables tested. Arrows represent relationships tested in the data analysis. Bold face text and arrows represent relationships for which we had explicit hypotheses.

Figure 2.

Adaptive sequential randomization design. Participants are randomized to treatment according to self-selected engagement status at 2 weeks, 3-8 weeks, and 8 weeks post-intake to intensive outpatient program (IOP). 8-week randomization scheme is not shown. Participant subgroups included in present analysis are indicated with circles. MI-IOP = Motivational Interviewing intended to re-engage participant in IOP. MI-PC = Motivational Interviewing with choice of treatment options.

Table 1

Relationship Between Explanatory Variables and Treatment Choices

Characteristic		No Choice	IOP	CBT	TEL	MED
Current Alcohol Dependence	No (<i>N</i> =34)	4 (11.8%)	16 (47.1%)	12 (35.3%)	2 (5.9%)	0 (0%)
	Yes (<i>N</i> =62)	14 (22.6%)	31 (50.0%)	11 (17.7%)	4 (6.5%)	2 (3.2%)
Current Cocaine Cocaine	No (<i>N</i> =37)	6 (16.2%)	16 (43.2%)	12 (32.4%)	2 (5.4%)	1 (2.7%)
	Yes (<i>N</i> =59)	12 (20.3%)	31 (52.5%)	11 (18.6%)	4 (6.8%)	1 (1.7%)
Program *	Community (<i>N</i> =42)	15 (35.7%)	16 (38.1%)	7 (16.7%)	2 (4.8%)	2 (4.8%)
	VA (<i>N</i> =54)	3 (5.6%)	31 (57.4%)	16 (29.6%)	4 (7.4%)	0 (0%)
Gender	Female (<i>N</i> =17)	6 (35.3%)	6 (35.3%)	4 (23.5%)	1 (5.9%)	0 (0%)
	Male (<i>N</i> =79)	12 (15.2%)	41 (51.9%)	19 (24.1%)	5 (6.3%)	2 (2.5%)
Goal of Complete Abstinence	Yes (<i>N</i> =81)	36 (44.4%)	23 (28.4%)	16 (19.8%)	5 (6.2%)	1 (1.2%)
	No (<i>N</i> =54)	22 (40.7%)	22 (40.7%)	8 (14.8%)	1 (1.9%)	1 (1.9%)
Disengagement Time	Early (<i>N</i> =71)	11 (15.5%)	37 (52.1%)	17 (23.9%)	5 (7.0%)	1 (1.4%)
	Late (<i>N</i> =25)	7 (28.0%)	10 (40.0%)	6 (24.0%)	1 (4.0%)	1 (4.0%)
12-Step Preference	Strong preference (<i>N</i> =49)	11 (22.4%)	21 (42.9%)	11 (22.4%)	5 (10.2%)	1 (2.0%)
	Other response (<i>N</i> =47)	24 (36.9%)	26 (40.0%)	13 (20.0%)	1 (1.5%)	1 (1.5%)
12-Step Efficacy	Very helpful (<i>N</i> =51)	10 (19.6%)	24 (47.1%)	11 (21.6%)	4 (7.8%)	2 (3.9%)
	Other response (<i>N</i> =45)	8 (17.8%)	23 (51.1%)	12 (26.7%)	2 (4.4%)	0 (0%)
Medication Preference	Strong preference (<i>N</i> =22)	3 (13.6%)	12 (54.5%)	4 (18.2%)	1 (4.5%)	2 (9.1%)
	Other response (<i>N</i> =74)	15 (20.3%)	35 (47.3%)	19 (26.7%)	5 (6.8%)	0 (0%)
Medication Efficacy	Very helpful (<i>N</i> =31)	9 (29.0%)	14 (45.2%)	4 (12.9%)	2 (6.5%)	2 (6.5%)
	Other response (<i>N</i> =65)	9 (13.8%)	33 (50.8%)	19 (29.2%)	4 (6.2%)	0 (0%)
Individual Psychotherapy Preference	Strong Preference (<i>N</i> =55)	9 (16.5%)	24 (43.6%)	16 (29.1%)	4 (7.3%)	2 (3.6%)
	Other response (<i>N</i> =41)	9 (22.0%)	23 (56.1%)	7 (24.0%)	2 (4.9%)	0 (0%)
Individual Psychotherapy Efficacy	Very helpful (<i>N</i> =54)	9 (16.7%)	25 (46.3%)	14 (25.9%)	5 (9.3%)	1 (1.9%)
	Other response (<i>N</i> =42)	9 (21.4%)	22 (52.4%)	9 (21.4%)	1 (2.4%)	1 (2.4%)
IOP Preference	Strong preference (<i>N</i> =52)	11 (21.2%)	26 (50.0%)	12 (23.1%)	2 (3.8%)	1 (1.9%)
	Other response (<i>N</i> =44)	7 (15.9%)	21 (47.7%)	11 (25.0%)	4 (9.1%)	1 (2.3%)
IOP Efficacy	Very helpful (<i>N</i> =57)	11 (19.3%)	28 (49.1%)	12 (21.1%)	4 (7.0%)	2 (3.5%)
	Other response (<i>N</i> =39)	7 (17.9%)	19 (48.7%)	11 (28.2%)	2 (5.1%)	0 (0%)
Total (<i>N</i> =96)		18 (18.8%)	47 (49.0%)	23 (24.0%)	6 (6.3%)	2 (2.1%)

*
p = .001

Table 2

Relationship Between Explanatory Variables and Binary Treatment Choices

Characteristic	Odds Ratio		
	95% CI Lower Limit	Value	95% CI Upper Limit
Comparison: IOP versus No Choice			
Current Alcohol Dependence	0.16	0.55	1.96
Current Cocaine Dependence	0.31	0.97	3.06
Program	2.44	9.69	38.45
Study	0.43	1.29	3.87
Gender	0.93	3.42	12.56
Disengagement Time	0.73	2.35	7.64
Abstinence Goal	0.67	2.09	6.49
12-Step Preference	0.64	1.95	5.89
12-Step Efficacy	0.40	1.20	3.57
Medication Preference	0.14	0.58	2.37
Medication Efficacy	0.77	2.36	7.19
Individual Psychotherapy Preference	0.32	0.96	2.84
Individual Psychotherapy Efficacy	0.30	0.88	2.61
IOP Preference	0.42	1.27	3.85
IOP Efficacy	0.35	1.07	3.24
Comparison: IOP versus Non-IOP			
Current Alcohol Dependence	0.63	1.60	4.04
Current Cocaine Dependence	0.72	1.82	4.59
Program	0.41	1.07	2.76
Study	0.46	1.16	2.93
Gender	0.36	1.31	4.75
Disengagement Time	0.44	1.29	3.73
Abstinence Goal	0.85	2.19	5.64
12-Step Preference	0.60	1.50	3.74
12-Step Efficacy	0.47	1.16	2.89
Medication Preference	0.29	0.85	2.47
Medication Efficacy	0.30	0.82	2.27
Individual Psychotherapy Preference	0.89	2.34	6.14
Individual Psychotherapy Efficacy	0.63	1.60	4.07
IOP Preference	0.31	0.76	1.88
IOP Efficacy	0.37	0.94	2.36

Note. CI = Confidence Interval.

Table 3

Multinomial Logistic Regression on Three-Level Response of No Choice, IOP, Non-IOP

Effect	Score χ^2 (2 df)	p
One-at-a-time score tests for inclusion		
Current Alcohol Dependence	2.6958	0.2598
Current Cocaine Dependence	1.8764	0.3913
Program	14.1208	0.0009
Study	0.2365	0.8885
Gender	3.8565	0.1454
Disengagement Time	2.0975	0.3504
Abstinence Goal	3.3509	0.1872
12-Step Preference	1.6702	0.4338
12-Step Efficacy	0.1594	0.9234
Medication Preference	0.5820	0.7475
Medication Efficacy	3.3128	0.1908
Individual Psychotherapy Preference	3.5058	0.1733
Individual Psychotherapy Efficacy	1.3251	0.5155
IOP Preference	0.7919	0.6730
IOP Efficacy	0.0453	0.9776
Tests for inclusion with Program included		
Current Alcohol Dependence	3.5248	0.1716
Current Cocaine Dependence	2.5032	0.2861
Study	1.9609	0.3751
Gender	0.2771	0.8706
Disengagement Time	2.3905	0.3026
Abstinence Goal	2.8844	0.2364
12-Step Preference	0.9382	0.6256
12-Step Efficacy	0.1440	0.9305
Medication Preference	0.5007	0.7785
Medication Efficacy	2.2590	0.3232
Individual Psychotherapy Preference	3.2476	0.1971
Individual Psychotherapy Efficacy	1.2610	0.5323
IOP Preference	0.4527	0.7974
IOP Efficacy	0.5785	0.7488

Table 4

Interaction between disengagement time and attitudes toward individual psychotherapy on treatment choice

	Choice			$\chi^2(2df)$	<i>p</i>
Variable	No Choice	IOP	Non-IOP		
Preference					
Early disengagement (N=71)				8.03	.02
Strong preference (N=43)	9%	47%	44%		
Other response (N=28)	25%	61%	14%		
Late disengagement (N=25)				2.15	.34
Strong preference (N=12)	42%	33%	25%		
Other response (N=13)	15%	46%	39%		
Efficacy expectation					
Early disengagement (N=71)				4.72	.09
Highly effective (N=43)	12%	46%	42%		
Other response (N=28)	21%	61%	18%		
Late disengagement (N=25)				1.81	.41
Highly effective (N=11)	36%	46%	18%		
Other response (N=14)	21%	36%	43%		

Table 5

Attendance subsequent to the outreach intervention

Choice	Total visits in 4 weeks						Overall weeks with ≥ 1 visit
	Min.	Lower quartile	Median	Upper quartile	Max.	Mean (SD)	
No Choice ($N=18$)	0	0	0	4	10	2.22 (3.37)	33.33%
IOP ($N=47$)	0	1	3.5	7	11	3.47 (3.28)	40.32%
Non-IOP ($N=31$)	0	1	1	3	11	2.03 (2.32)	47.87%
Disengagement Time							
Early ($N=71$)							46.48%
Late ($N=25$)							32.00%