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Client Evaluation of Treatment for Alcohol Use Disorder in COMBINE

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Abstract

Practitioners and researchers across disciplines have been interested in identifying variables that act as indicators of treatment success or failure and one straightforward approach to measuring treatment success is to assess client satisfaction with treatment. Existing measures of treatment satisfaction do not address the specific aspects relevant to alcohol use disorder (AUD) treatment. Researchers in the COMBINE Study developed a new measure of treatment satisfaction to assess satisfaction in AUD treatment: The Evaluation of Treatment (EOT) measure. The aims of the present study were to examine the factor structure of items from the EOT measure and to examine the association between the EOT measure and other measures of client engagement, as well as AUD treatment outcomes. We also extended to model to test for possible mediation effects of treatment evaluation on the relationship between client treatment engagement components and AUD treatment outcomes. Confirmatory factor analyses indicated a 6-factor model with a higher order treatment satisfaction factor provided an excellent fit to the data ($\chi^2(246) = 499.44$, $p < 0.001$, CFI = 0.99, TLI = 0.98, RMSEA = 0.040 (90% CI: 0.035, 0.045). Overall, the latent factor of treatment satisfaction was significantly associated with client engagement predictors and treatment evaluation significantly mediated the associations between both working alliance and treatment expectations in the prediction of alcohol-related problems and global severity. Findings suggest that client evaluations of treatment play a substantial role in predicting AUD treatment outcomes and should be considered in future treatment and research.

Keywords

Alcohol use disorder treatment; Treatment satisfaction; Treatment engagement; Drinking Outcomes; Working alliance

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Introduction

Treatment efficacy and effectiveness research often focuses on specific questions regarding whether or not a treatment is more or less efficacious than a comparison treatment and/or whether a treatment is effective in influencing some outcome. In order to answer these questions, one must first define what constitutes effectiveness of treatment. Practitioners and researchers across disciplines have long been interested in identifying variables that act as indicators of treatment success or failure and one straightforward approach to measuring treatment success is to assess the client's perspective in the evaluation of treatment success or failure. The emphasis on client evaluation of treatment is also consistent with recent, nationwide efforts to focus on patient-centered outcomes in efficacy and effectiveness research. For example, the Patient-Centered Outcomes Research Institute (PCORI; Selby, Beal, & Frank, 2012) was recently founded to conduct research that is guided by what is most important to clients, caregivers, and clinicians.

Client evaluations of psychotherapy, typically assessed through survey measures (e.g., the Client Satisfaction Questionnaire; Larsen, Attkisson, Hargreaves, & Nguyen, 1979), provide feedback regarding client satisfaction with therapy. Alcohol use disorder (AUD) research has indicated that process elements such as working alliance, treatment attendance, and treatment expectations might impact client outcomes (Dearing, Barrick, Dermen, & Walitzer, 2005). Research also has shown that client evaluations may be more reliable than the practitioner's evaluation of treatment in terms of client satisfaction or working alliance (Horvath & Symonds, 1991). Moreover, higher levels of treatment satisfaction were associated with higher levels of attendance, greater reductions in drinking during therapy, and better overall outcomes, regardless of treatment assignment, in the Project MATCH study (Donovan, Kadden, DiClemente, & Carroll, 2002). Accordingly, client treatment evaluation appears to be of broad clinical relevance for individuals receiving treatment for AUD.

Despite the relationship between client treatment evaluation and other clinically relevant variables (e.g., working alliance, treatment attendance, treatment expectations, and readiness to change), extant research on treatment evaluation in AUD populations has generally relied upon assessment tools not developed for this unique population. For example, the Client Satisfaction Questionnaire (CSQ; Larsen et al., 1979) is still widely used in research on AUD (e.g., Dearing et al., 2005; Donovan et al., 2002). However, the CSQ was developed for a general treatment-seeking audience, regardless of the orientation of the treatment (e.g., medical or psychological treatment) or the clinical population. In contrast with general medical and psychological treatments, treatments for AUD often contain unique and diverse target outcomes, including alcohol use, alcohol-specific effects (e.g., blood alcohol concentration psychoeducation), consequences of alcohol use (e.g., social problems), and potential distally relevant alcohol-related consequences and/or external factors of relevance to AUD (e.g., employment problems). Many treatments for which the CSQ has been used (e.g., Pascoe, 1983), for example, do not target such a broad range of outcome variables as may be targeted in AUD treatment (e.g., alcohol use, consequences, social support, employment). In a recent study among individuals in treatment for substance abuse, specific aspects of treatment (e.g., learning coping skills) were endorsed as more helpful to some

clients than other aspects of treatment (Montgomery, Sanning, Litvak, & Peters, 2014). Accordingly, many existing measures of client satisfaction fail to address specific areas of concern for clients with AUD or other substance use disorders even though treatment satisfaction has been studied among these specific populations. In partial response to this dearth of research on client satisfaction of AUD treatment specifically, the COMBINE study (COMBINE Study Research Group, 2003) had a secondary aim to develop a measure of AUD treatment evaluation that would assess for aspects of treatment that are specific to AUD treatment rather than medical/mental health treatment more generally. However, this measure (the Evaluation of Treatment measure) has never been examined in the COMBINE study publications and little is known about how this measure relates to AUD treatment outcomes and other clinically relevant variables in COMBINE.

The aims of the present study were threefold. The first aim was to estimate a model of treatment evaluation using items from the Evaluation of Treatment (EOT) measure administered in the COMBINE Study. The second aim was to extend the model of treatment evaluation to incorporate measures of client treatment engagement, specifically working alliance, attendance, treatment expectations, and readiness to change. These measures of treatment engagement were important to incorporate in the present models to avoid potential confounds associated with treatment evaluation. For example, we hypothesized that individuals with low readiness to change could be more dissatisfied with treatment in general simply due to their unwillingness to engage in treatment. The final aim of the present study was to test for possible mediation effects of treatment evaluation on the relationship between client treatment engagement components (working alliance, attendance, treatment expectations, and readiness to change) and AUD treatment outcomes. The specific treatment outcomes of interest were alcohol-related consequences, global problem severity, and the percent days of heavy drinking at 1-year post-treatment.

Methods

Participants and Procedures

The current study was a secondary analysis of data collected as part of the COMBINE study, a National Institute on Alcohol Abuse and Alcoholism (NIAAA) funded, multisite randomized clinical trial testing whether improvements in the treatment of alcohol dependence could be realized through combining pharmacotherapy and behavioral interventions (COMBINE Study Research Group, 2003). Participants in the COMBINE study ($N = 1383$) were 69.1% male, 76.8% non-Hispanic, White; 11.2% Hispanic; 7.9% Black; 1.3% American Indian; and 2.8% were other or mixed race; and participants' average age was 44.4 years ($SD = 10.2$). Study design and overall study findings are presented elsewhere (Anton et al., 2006; COMBINE Study Research Group, 2003). Briefly, two pharmacotherapies (acamprosate and naltrexone versus placebo versions of each medication) were combined with two behavioral interventions, brief Medical Management (MM) and Combined Behavioral Intervention (CBI; COMBINE Study Research Group, 2003). The COMBINE study tested different combinations of behavioral and pharmacotherapy treatment approaches, testing both pharmacotherapies together, alone, and in combination with each of the behavioral interventions. For the present analyses, only data from the sub-

sample of participants in the CBI conditions ($N = 776$) who completed the Evaluation of Treatment measure ($n = 639$) were included in the analyses. The final mediation model, which had greater missing data in covariates, was based on a smaller sample ($n = 570$; 73.4% of the total sample). Attrition analyses revealed no significant differences in studied variables for the present sample compared to the overall COMBINE sample.

Measures

Evaluation of treatment—Although the primary aims of COMBINE were to test the incremental improvement of different treatment combinations on alcohol consumption, a secondary goal of the study was to explore client evaluations of various treatment combinations. Related to this goal, were the following questions: what factors influence client evaluations of the therapeutic experience, and to what extent do client evaluations of treatment indicate treatment success? To this end, the researchers in COMBINE constructed a self-report questionnaire to systematically assess the client evaluations of AUD treatment. This questionnaire, the Evaluation of Treatment (EOT) measure is a 56-item measure of client appraisals of the therapeutic experience where higher scores indicate greater client satisfaction with treatment. The EOT followed a theory-driven approach to measure construction, assessing several different theoretically relevant domains, including the therapeutic relationship, environmental factors, and client factors. The measure contains 56 items that assess issues that are relevant to therapy, in general, as well as medication-specific client satisfaction. However, to avoid potential confounds associated with medication-specific satisfaction or dissatisfaction, only the 39 items that were relevant to all participants, regardless of treatment condition, were examined in the present study. The EOT measure was administered at 8-week follow-up (i.e., post-treatment) in COMBINE. The current study evaluated the factor structure of the EOT and examined the relationship between this measure and other relevant indicators of treatment process and outcome among those individuals who received CBI. The EOT measure is free of charge and publicly available at <http://lib.adai.washington.edu/instruments/>.

Working alliance—Working alliance was measured in COMBINE via a modified version of the Working Alliance Inventory (WAI; Horvath & Greenberg, 1986). The WAI, as administered in COMBINE, was a measure of the therapeutic relationship between client and provider consisting of 12 items with Likert-type response options (1 = Never, 7 = Always) to test therapeutic bond, goals, and tasks (e.g., “I believe [therapist] is genuinely concerned for my welfare”). The WAI was administered at several timepoints throughout treatment in the COMBINE study; however, only data from the week-2 treatment WAI assessment were used in the present analyses. Some items were reverse scored so that higher scores on the WAI indicated better working alliance in the present study. Consistent with previous research on the relationship between client treatment satisfaction and working alliance, we hypothesized that treatment evaluation would mediate the relationship between working alliance and 1-year outcomes in COMBINE (Dearing et al., 2005).

Treatment attendance and expectations—Treatment attendance was measured using participant data logs and treatment expectations were measured via the Treatment Experiences and Expectations measure that was developed specifically for the COMBINE

Study (TEE; COMBINE Study Research Group, 2003). The TEE is a brief measure that assesses both previous treatment experiences (e.g., “how many times have you participated in the following treatment: inpatient/residential treatment”) and expectations for how helpful clients feel their treatment experience will be (e.g., “how helpful do you feel that talking to a therapist and the counseling you receive in this study will be in helping you change your drinking behavior?”). Higher scores on the TEE may be interpreted as more positive treatment expectations. The TEE was administered at baseline in COMBINE. Treatment attendance and expectations were included as predictors of treatment evaluation given previous research suggesting that such factors can impact treatment outcomes (Dearing, Barrick, Dermen, & Walitzer, 2005). Further, treatment attendance was examined in the present study because we hypothesized that individuals who were more satisfied with the treatment experience during treatment would have greater treatment attendance and would likely evaluate treatment more positively at the end of treatment.

Readiness to change—Client readiness to change was measured at baseline via the University of Rhode Island Change Assessment scale (URICA; DiClemente & Hughes, 1990). The URICA as administered in COMBINE was a 24-item measure of stages of change (Precontemplation, Contemplation, Action, and Maintenance; e.g., “I am really working hard to change”) with Likert-type response options (1 = Strongly Disagree, 5 = Strongly Agree). The URICA is scored such that each participant receives a score on each stage of change and higher summary scores indicated higher stages of change (i.e., closer to Maintenance). The URICA was administered at baseline in COMBINE. Previous research has suggested that readiness to change is important for treatment providers to consider in the course of treatment (e.g., DiClemente, Schlundt, & Gemmell, 2004). Readiness to change was therefore included in the present analyses as a potentially relevant variable in the relationship between evaluation of treatment and outcomes.

Treatment outcomes—Outcomes examined in the present study included drinking intensity, alcohol-related consequences, and global problem severity. Drinking intensity was operationalized by the Percent Heavy Drinking Days (PHDD), where “heavy drinking” was defined as 4/5 or more drinks per drinking occasion for women/men. Drinking intensity was measured via the Form 90 (Miller, 1996), a calendar-based interview that assessed the quantity and frequency of an individual’s drinking in a 90-day period. The 90-day periods assessed for the present study included the 90 days preceding baseline interview, the 90 days preceding post-treatment interview, and the 90 days preceding the 1-year follow-up. Alcohol-related consequences were measured via summary scores of the 50-item Drinker Inventory of Consequences (DrInC; Miller, Tonigan, & Longabaugh, 1995). Global problem severity was measured via the summary score of the 53-item Brief Symptom Inventory (BSI; Derogatis, 1983), which assessed psychological problems across nine domains. Higher values for PHDD, DrInC, and BSI global severity indicated poorer treatment outcomes. Treatment outcome variables were examined during treatment (8-week) and 1-year follow-up in the present analyses.

Data Analysis

Preliminary data screening of the EOT data via visual inspection of histograms suggested the data were close to or within normal range and data existed within each categorical response option. Data were treated as ordered categorical in all analyses described below. No data transformations were used for the present analyses. All factor analyses were conducted in Mplus version 7.3 (Muthén & Muthén, 2012) and mean- and-variance adjusted weighted least squares (WLSMV) estimation with a sandwich estimator to adjust for clustering within treatment sites was used. WLSMV estimation allows for missing data in outcome variables and uses the full variance-covariance matrix without requiring listwise deletion of missing outcome data, which is a preferred method for estimation when data are assumed to be missing at random (Hallgren & Witkiewitz, 2013). The WLSMV estimator does not allow for missing data in covariates.

A priori criteria for acceptable model fit indices were a CFI .90 and RMSEA .08, which is consistent with recommendations for adequate, but not strong model fit (Hu & Bentler, 1999). Given there have been no prior factor analyses of the EOT measure, we started with exploratory factor analyses (EFA) of 39 EOT items that were identified to reflect satisfaction with treatment and that were not medication specific. The EFA was conducted using principal axis factoring with geomin rotated loadings using a random split-half of the sample. The items with factor loadings $> .60$ in the EFA that were deemed substantively relevant to the factors were retained for a confirmatory factor analysis (CFA) with the other random split-half of the sample. The CFA model was then extended to a structural equation model (SEM) to test the association between the EOT and measures of client treatment engagement, specifically working alliance, attendance, treatment expectations, and readiness to change. These measures of treatment engagement were important to incorporate in the present models to avoid potential confounds associated with treatment evaluation. We then extended the SEM model to examine mediation effects of treatment evaluation on the relationship between client treatment engagement components (working alliance, attendance, treatment expectations, and readiness to change) and AUD treatment outcomes. We were specifically interested in the association between client engagement and evaluation of treatment (the “a-path” in mediation) and the association between client’s evaluation of treatment and one year drinking outcomes (the “b-path” in mediation). The significance of the mediated effect was determined using the product of coefficients (a-path * b-path) approach with bootstrapping (1000 bootstraps) to obtain the 95% confidence intervals for the mediated effect (MacKinnon et al., 2002).

Results

Exploratory Factor Analysis

The first goal of the current study was to estimate a model of treatment satisfaction using items from the Evaluation of Treatment measure. Of the 56 items in the full EOT measure, only the 39 items that were not treatment condition-specific (e.g., “would you choose to take these medications again”) were examined in the present study. An exploratory factor analysis (EFA) was conducted using these 39 items, yielding a 6-factor model that provided adequate model fit and eigenvalues > 1 ($\chi^2(522) = 774.7, p < 0.001$; CFI = 0.99, TLI = 0.98,

RMSEA = 0.04) and a parallel analysis indicated that more than 6-factors could be identified by chance. From this EFA and per a priori cutoffs of factor loadings $> .60$, 24 items were retained as indicators in a confirmatory factor model with the other split-half sample.

Confirmatory Factor Analysis

Items, shown in Table 1, were designated as loading on one of six factors: general satisfaction, dealing with urges, therapist involvement, learning skills, self-growth, and mutual help engagement, with one higher order “Evaluation of Treatment” factor. This model provided an adequate fit to the observed data ($\chi^2(246) = 499.44$, $p < 0.001$, CFI = 0.99, TLI = 0.98, RMSEA = 0.040 (90% CI: 0.035, 0.045). Reliability analyses indicated that each of the scales had adequate internal consistency (Cronbach’s $\alpha > 0.85$ for all scales).

The higher order confirmatory factor model described above was then extended to the full sample using a structural equation modeling framework by incorporating four client engagement predictors (working alliance, attendance, treatment expectations and readiness to change) of the treatment evaluation higher order factor. This model also provided a reasonable fit to the observed data based on CFI, TLI, and RMSEA ($\chi^2(338) = 540.78$, $p < 0.001$; CFI = 0.98, TLI = 0.98, and RMSEA = 0.034; 90% CI: 0.028, 0.039). Higher levels of working alliance (standardized $\beta = 0.34$, $p < 0.001$), more treatment sessions attended (standardized $\beta = 0.18$, $p < 0.001$), greater (i.e., more optimistic) treatment expectations (standardized $\beta = 0.21$, $p < 0.001$), and higher levels of readiness to change (standardized $\beta = 0.11$, $p = 0.001$) were associated with significantly higher levels of treatment satisfaction. Overall, the client engagement predictors explained 28.7% of the variance in the evaluation of treatment factor.

Mediation Analyses

In the full model, shown as Figure 1, mediation analyses were conducted to determine whether the treatment evaluation factor mediated the associations between treatment engagement measures and treatment outcomes, while controlling for pretreatment and during treatment levels of the outcome measures. Full results from the mediation models are provided in Table 2. The model provided an adequate fit to the observed data based on CFI, TLI, and RMSEA (CFI = 0.97, TLI = 0.97, and RMSEA = 0.03 (90% CI 0.024, 0.033)). The treatment evaluation factor significantly predicted DrInC and BSI scores, with the full model (including all paths in Figure 1) explaining 25.3% of the variance in one year DrInC scores and 37.7% of the variance in one year BSI-Global Severity scores. The model explained 22% of the variance in one year percent heavy drinking days, which was not statistically significant ($B(SE) = -5.24(2.93)$, $p = 0.07$). Treatment evaluation significantly mediated the associations between working alliance, treatment attendance, treatment expectations, and readiness to change in the prediction of DrInC scores and BSI-Global Severity, but did not predict percent heavy drinking days. Direct effects of attendance, working alliance, treatment expectations, and readiness to change on outcomes were not significant (all $p > 0.05$) with treatment evaluation in the model. Thus, a client’s evaluation of treatment significantly predicted outcomes at one year following treatment and mediated the association between treatment engagement factors, specifically working alliance, treatment

expectations, treatment attendance, and readiness, and non-consumption outcomes (DrInC and BSI).

Given the temporal confounding of the during treatment drinking outcomes in the consideration of evaluation of the entire treatment period we re-estimated the model shown in Figure 1 without the during treatment drinking outcomes as a sensitivity analyses to make sure that controlling for drinking during treatment did not explain the substantive findings. A model without during treatment (week 8) drinking outcomes provided an adequate fit to the data ($\chi^2(503) = 922.07$, $p < 0.001$; CFI = 0.95, TLI = 0.95, and RMSEA = 0.04 (90% CI 0.034, 0.041) and the treatment evaluation factor significantly predicted all three drinking outcomes at one year post-treatment. All mediation effects were significant ($p < 0.05$), including the mediation of one year percent heavy drinking days. Thus, without controlling for during treatment alcohol consumption, we found that a client's evaluation of treatment significantly predicted both consumption and non-consumption outcomes at one year following treatment and mediated the association between all treatment engagement factors and all outcomes.

Discussion

The psychometric results from the current study support the internal consistency reliability and construct validity of a 24 item Evaluation of Treatment measure that is specific to AUD treatment. The findings from the confirmatory factor model indicated that a client's evaluation of AUD treatment can be characterized along six dimensions: general satisfaction, dealing with urges, therapist involvement, learning skills, self-growth, and mutual help engagement. These six dimensions were found to underlie a general "evaluation of treatment" latent factor, which was strongly associated with other measures of client engagement, providing evidence of concurrent validity.

The findings from the present study suggest that client evaluations of treatment play a substantial role in predicting AUD treatment outcomes. We found that client evaluations of treatment mediated the effects of commonly examined variables (e.g., client engagement variables, readiness to change) and outcomes. Specifically, evaluation of treatment predicted treatment outcomes beyond variables that are more commonly examined in AUD treatment research, such as working alliance, readiness to change, and treatment attendance. Further, the influence of these commonly examined variables was outweighed by the role of treatment evaluation once treatment evaluation was examined. This latter finding was particularly surprising given the infrequency with which client evaluation of treatment is examined in AUD treatment research and the fact that no measures of client of evaluation of AUD treatment specifically existed prior to the one developed for the COMBINE Study. These findings suggest that commonly examined variables (i.e., working alliance, treatment attendance and expectancies, readiness to change) may paint an incomplete picture of the process by which individuals are successful in treatment and that treatment satisfaction is important to evaluate.

Limitations

Although the present study possesses many strengths including utilizing an empirical and concept-driven approach to evaluating a measure developed specifically for the participants in the COMBINE Study, it is not without limitations. One potential limitation to the present study, as well as other self-report measures of treatment evaluation is the risk for biased data due to social desirability. If present, social desirability may artificially inflate the positivity of the participants' satisfaction of treatment. In the COMBINE Study, however, the EOT measure was administered without the research assistant present, which may have minimized potential for social desirability. Further, data for each of the items in the EOT were within or nearly within normal distribution ranges, suggesting a lack of skewness.

Another potential limitation to the present study is that the EOT measure was developed by researchers and may, therefore omit aspects of treatment satisfaction that may be more apparent to clients or clinicians than to the researchers themselves. As such, there may be potentially important aspects of treatment about which researchers in the present study were not collecting data. Future research may be needed to interview individual clients and conduct focus groups regarding the external validity of the presently used EOT measure.

Implications and Future Directions

The results of the present study highlight the importance of client satisfaction specifically with AUD treatment, an often overlooked aspect of this area of treatment and research. However, our findings also raise new questions. For example, client satisfaction of treatment predicted drinking consequences and psychiatric severity, but not alcohol use when during treatment alcohol use was included in the model. Importantly, when during treatment drinking was not included in the model we did find that client's evaluation of treatment was significantly associated with one year post-treatment percent heavy drinking days. Thus, when controlling for early treatment response (percent heavy drinking days during week 8) the client's evaluation of treatment was not significant above and beyond early treatment response on alcohol consumption, but was significantly related to non-consumption outcomes above and beyond early treatment response on non-consumption outcomes. This finding highlights potential new areas of research and also may indicate that examining treatment effects purely by significant changes in alcohol use may overlook alternative, clinically meaningful effects such as alcohol-related consequences and psychiatric severity.

Given the implications for predicting clinically meaningful outcomes, it may be important for clinicians to assess client evaluations of treatment throughout the therapeutic process. Such frequent considerations of client satisfaction may highlight if clients might not be benefitting from treatment and could inform clinician decisions to shift treatment options to improve satisfaction for overall outcomes. Formal assessment of client evaluations of treatment is especially important considering that treatment provider perspectives may not always be accurate (Horvath & Symonds, 1991).

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Research highlights

- The Evaluation of Treatment measure can be used to assess client treatment satisfaction in alcohol use disorder treatment along one higher order dimension, representing overall evaluation of treatment, and six lower order dimensions, representing general satisfaction, urges, therapist, skills, self, and mutual help engagement.
- The client's overall evaluation of treatment was significantly associated with client engagement predictors and treatment evaluation significantly mediated the associations between both working alliance and treatment expectations in the prediction of alcohol-related problems and global severity.
- Findings suggest that client evaluations of treatment play a substantial role in predicting AUD treatment outcomes and should be considered in future treatment and research.

Figure 1.
Full mediation model.

* Note. $p < 0.05$.

Table 1

Evaluation of Treatment items with factor loadings

Factor	Item	Loading
General satisfaction	13. Satisfied with counseling	0.97
	14. Satisfied with counselor	0.90
	16. Recommend this kind of counseling to a friend	0.91
	17. Would you choose this kind of counseling again	0.94
Helpful with urges	26. How helpful was treatment in feeling less of an urge to drink	0.88
	27. How helpful was treatment in thinking about alcohol use	0.89
	30. How helpful was treatment in not feeling the need to drink	0.91
	31. How helpful was treatment in having less desire to drink	0.94
Therapist	32. How helpful was it meeting with therapist	0.87
	36. How helpful was it to tell problems and feelings	0.94
	37. How helpful was it to have a therapist that listened	0.95
	38. How helpful were the assignments the counselor gave	0.75
Skills	45. How helpful was learning more about alcohol and its effects	0.67
	46. How helpful was developing better skills for communication	0.87
	47. How helpful was developing skills for coping with urges	0.86
	48. How helpful was gaining better skills to cope with pressures	0.89
Self-growth	50. How helpful was treatment for understanding self better	0.88
	51. How helpful was treatment for managing feelings better	0.94
	52. How helpful was treatment for developing satisfying relationships	0.82
	53. How helpful was treatment for pursuing social/recreational activities	0.80
Mutual help	54. How helpful was treatment for increasing your self-esteem	0.84
	39. How helpful was treatment in recommending attendance at groups	0.88
	40. How helpful was treatment in becoming involved in AA	0.85
	41. How helpful was treatment in becoming involved in a mutual-help support group other than AA	0.78

Table 2

Regression coefficients and 95% confidence intervals of mediated effects from full mediation model shown in Figure 1 (n = 570).

Predictor	Predictor/Mediator	Outcome measure	β	B (SE)
<i>Path from predictor to mediator (a-path)</i>				
Alliance	Treatment evaluation		0.34	0.03 (0.002) *
Attendance			0.13	0.02 (0.005) *
Expectation			0.19	0.15 (0.04) *
Readiness			0.08	0.03 (0.02)
<i>Path from mediator to outcome (b-path)</i>				
	Treatment evaluation	DrInC	-0.24	-6.87 (1.86) *
		BSI-global severity	-0.25	-4.30 (0.94) *
		% heavy drinking days	-0.11	-5.23 (2.83)
<i>Indirect effects of predictors on outcomes via mediator</i>			B	95% confidence interval
Alliance	Treatment evaluation	DrInC	-0.17	-0.30, -0.08 *
Attendance			-0.20	-0.39, -0.05 *
Expectation			-1.05	-2.04, -0.43 *
Readiness			-0.26	-0.51, -0.002 *
Alliance	Treatment evaluation	BSI-global severity	-0.11	-0.18, -0.06 *
Attendance			-0.12	-0.22, -0.05 *
Expectation			-0.66	-1.31, -0.36 *
Readiness			-0.16	-0.43, -0.001 *
Alliance	Treatment evaluation	% heavy drinking days	-0.13	-0.28, 0.01
Attendance			-0.15	-0.51, 0.01
Expectation			-0.81	-2.74, 0.03
Readiness			-0.20	-0.57, 0.02

* Note. $p < 0.05$.

DrInC = Drinker Inventory of Consequences; BSI = Brief Symptom Inventory