Published in final edited form as:

J Consult Clin Psychol. 2014 April ; 82(2): 368–373. doi:10.1037/a0035994.

Client Characteristics as Moderators of the Relation Between the Therapeutic Alliance and Outcome in Cognitive Therapy for Depression

Lorenzo Lorenzo-Luaces, M.A.,

Department of Psychology University of Pennsylvania

Robert J. DeRubeis, Ph.D., and

Department of Psychology University of Pennsylvania

Christian A. Webb, Ph.D.

Harvard Medical School/McLean Hospital Harvard University

Abstract

Objective—Little is known about the variability of the alliance-outcome correlation across identifiable client subsets. This question was explored in a sample of 60 clients receiving cognitive therapy for depression, from which an overall correlation of .23 was observed between alliance ratings and subsequent symptom change.

Methods—We examined interactions between the observer-rated version of the Working Alliance Inventory (WAI-O) and client demographics, features of depression, personality and other clinical features in predicting subsequent symptom change.

Results—After correcting for multiple comparisons, interactions between the WAI-O and the number of prior depressive episodes, as well as the severity of baseline anxiety symptoms, were significant predictors of symptom change. When both interactions were controlled for, number of prior depressive episodes emerged as a statistically significant moderator. The alliance predicted outcome in the subgroup of clients with 0–2 prior episodes ($r = .52$), but not in those with 3 or more prior episodes ($r = -.02$). These findings were obtained despite similar univariate distributions on the alliance and symptom change in the two subgroups.

Discussion—Differences that were observed in the predictive relation of alliance to outcome as a function of number of prior episodes suggests that different therapy processes may account for change in these subgroups. If the pattern observed in the present study is replicated, it would suggest that the alliance-outcome association has been both under- and over-estimated.

Estimates from meta-analytic reviews indicate a small to medium-sized association between the therapeutic alliance and treatment outcomes (Horvath, Del Re, Flückiger, & Symonds, 2011). Although methodological issues in research on the alliance have prompted questions about the direction of the causal influence in the relation between symptom change and the alliance (e.g., DeRubeis, Brotman, & Gibbons, 2005), the alliance remains an important

construct in psychotherapy research and practice. A relatively unexplored question is to what extent alliance-outcome associations are moderated by identifiable client characteristics.

Research on client characteristics and the alliance has for most part focused on predictors of the alliance (Castonguay, Constantino, & Holtforth, 2006) or on the alliance as mediator of the relationship between client characteristics and outcome (e.g., Shahar, Blatt, Zuroff, & Pilkonis, 2003). Less severe clinical pictures, fewer difficulties in interpersonal relationships, and improvement during therapy tend to be associated with higher alliance scores. A separate question, which is the focus of this report, is whether client characteristics moderate the alliance-outcome relationship. Using simulations, DeRubeis, Gelfand, German, Fournier, and Forand (2013) have shown that the magnitude of the association between any process variable and outcome can be heavily influenced by characteristics of the client sample in which the correlation is studied. In a meta-analysis that illustrates this point, Sharf and colleagues (2010) found that the association between the alliance and study dropout tends to be smaller in studies that contain higher proportions of clients who completed high school.

Although moderation of the alliance-outcome relationship has been explored in other meta-analyses (e.g., Del Re, Horvath, Flückiger, Symonds, & Wampold, 2012), a meta-analysis allows one to make inferences about samples, not individuals. To our knowledge, only Falkenström, Granström, and Holmqvist (2013) have used individual patient data to test client variables as moderators of the alliance-outcome relationship. The objective of this study is to identify client characteristics that moderate the alliance-outcome correlation in cognitive therapy (CT) for depression. We explored demographic variables, personality traits, and other clinical features patient that have been hypothesized to affect the alliance or its relation to outcome.

Insofar as demographic features, such as gender, age, or marital status, influence clients' perceptions of interpersonal relationships, these may interact with the alliance in promoting change (see Flückiger et al., 2013). Personality traits have also been explored in relation to the alliance and improvement in psychotherapy. Del Re et al. (2012) found that the percentage of clients with personality disorders in studies of the alliance was unrelated to the strength of the alliance-outcome relationship. However, in a large, heterogeneous sample of mental health clinic outpatients, Falkenström et al. (2013) found that the alliance-outcome relationship was stronger in clients with personality problems. It has also been suggested that in depression the alliance might be of particular importance with clients with more severe, chronic and recurrent forms (see Arnow et al., 2013). Finally, features that reflect the complexity of a client's clinical picture, including for example co-morbid anxiety (Horvath et al., 2011) or substance use (Flückiger et al., 2013), have been considered as potential moderators of the alliance-outcome associations.

Methods

Data were drawn from the CT arm (N = 60) of a randomized controlled trial comparing CT versus antidepressants in the treatment of moderate to severe major depressive disorder (DeRubeis et al., 2005). The study was approved by the local institutional review boards.

Measures

Beck Depression Inventory-2nd Edition (BDI-II; Beck et al., 1996)—Depressive symptoms were assessed with the BDI-II, a 21-item self-report measure was completed by all clients before the start of each therapy session, as well as at the end of the 16-week treatment period. When a client did not provide an end-of-treatment BDI, which happened in 9 dropouts, we used the last available BDI to represent outcome on this instrument.

Working Alliance Inventory – short observer-rated version (Tracey & Kokotovic, 1989)—On the WAI-O, observers rate each of 12 items on a 7-point scale (0 = never to 6 = always; range = 0–72). Ratings used in the present paper constitute a subset of the ratings used by Webb and colleagues (2011). For each of the 59 clients who completed at least three sessions of CT, two raters (from a pool of five) rated an early session of therapy (session 3 if available; otherwise session 2 or 4). Raters were assigned sessions according to a balanced incomplete block design. Pooled ratings for each session yielded estimates of the quality of the alliance. Raters received training on the WAI-O and were blind to treatment outcomes. They achieved adequate reliability (see Webb et al., 2011, for a more thorough description of the procedure).

Potential moderators

Demographics—We included age (in years), sex, years of education, marital status (married or cohabiting with a partner vs. single), and estimated intelligence quotient IQ (derived from the Shipley-Harford Living Scale; Shipley, 1940).

Personality—We included the 5 factors of the NEO-Five Factor Inventory (NEO-FFI): openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1992) and the number of Cluster B and C symptoms individuals endorsed in the Structured Clinical Interview for DSM-IV Axis II disorders (Spitzer, Williams, Gibbon, & First, 1990).

History and features of depression—This set consisted of depression severity (Hamilton Rating Scale for Depression (HRSD); Hamilton, 1960); atypical depression; duration of current episode; age at first episode; number of prior episodes; and number of prior depression treatments (all assessed by the SCID-I; First, Spitzer, Gibbon, & Williams, 2001).

Other clinical features—We also included: number of life events (PERI; Dohrenwend, Askenasy, Krasnoff, & Dohrenwend, 1978), history of substance abuse (from the SCID-I interview), severity of anxiety symptoms (Hamilton Anxiety Inventory; Hamilton, 1959),

hopelessness (Beck Hopelessness Scale; Beck, Weissman, Lester, & Trexler, 1974) and total score on the attributional style questionnaire (ASQ; Peterson et al., 1982).

Analytic plan

Continuous variables were centered at their mean. Binary ones were coded as ± 0.5 . Outliers at three or more standard deviations were winsorized, and non-normal variables were transformed to meet linearity assumptions. The outcome variable was residualized subsequent change in depressive symptoms, calculated as the difference between the BDI scored before the start of the rated session and the end-of-treatment BDI, controlling for the session BDI. For each of the 23 potential moderators, we ran regression models predicting residualized change from 1) the WAI-O; 2) the main effect of the potential moderator; and 3) the interaction of the potential moderator and the WAI-O. We corrected for multiple comparisons with the Benjamini-Hochberg method (Benjamini & Hochberg, 1995), using a false discovery rate of $p < .05$. After this correction, potential moderators and their respective interactions with the WAI-O were included together in a regression model predicting subsequent change. We used Pothoff's modification to the Johnson-Neyman technique to assess the effect of interactions (Hayes & Matthes, 2009). This yields an estimate of the point along the values of the moderator at which the predictor-criterion association transitions between statistically significant and non-significant.

Results

Table 1 presents descriptive statistics as well as the correlations of all 23 pretreatment variables with the WAI-O and subsequent change. By itself, the WAI-O was related to subsequent symptom change ($\beta = 0.23$, $x^2(1) = 11.31$, $p < .001$). The main effect of none of the 23 variables was significant in the prediction symptom change. However, 4 of the 23 tests of moderation (interaction with the alliance) were significant at the $p < .05$ level (uncorrected). The alliance-outcome relationship became stronger with: increasing severity of baseline anxiety symptoms ($\beta = 0.23$, $x^2(1) = 14.89$, $p < .001$); increasing levels of self-reported conscientiousness ($\beta = 0.22$, $x^2(1) = 4.60$, $p = .03$); lower scores on measured IQ ($\beta = -0.19$, $x^2(1) = 4.68$, $p = .03$); and fewer prior episodes ($\beta = -0.30$, $x^2(1) = 18.45$, $p < .001$). After correcting for multiple comparisons, only the interactions with anxiety severity and number of prior depressive episodes remained significant. When a model predicting subsequent change contained the WAI-O, these two moderators, and their interactions, only the interaction between the WAI-O and prior episodes remained significant ($\beta = -0.25$, $x^2(1) = 4.20$, $p = .04$). The interaction between the WAI-O and anxiety was reduced to a trend level ($\beta = -0.40$, $x^2(1) = 3.07$, $p = .08$).

The region of significance for predicting outcome with the WAI-O was estimated by the Johnson-Neyman technique as all values of prior episodes below 1.89. Figure 1 provides a graphical representation of this association. As depicted in Figure 2, among clients with 0–2 prior episodes, the WAI-O predicted symptom change ($r = .52$, 95% CI = .22–.73, $p = .001$), and its prediction of symptom change was higher than in the group with 3+ prior episodes ($r = -.02$, 95% CI = $-.41 - .38$, $p = .89$). These relationships held for the WAI-O Total, and were not specific to either of its subscales. The means of WAO-I scores were similar for

those with 0–2 vs. 3+ prior episodes (51.2 vs. 53.6; $t(57) = 1.65$, $p = 0.10$), as were the variances (5.23 vs. 5.67, $F = 0.95$, $p = 0.34$). Residualized change in BDI was also similar between the groups (11.42 vs. 13.20, $t(57) = -0.80$, $p = 0.43$; variances: 8.64 vs. 8.40, $F = 0.18$, $p = 0.67$).

Discussion

In this sample, the overall alliance-outcome correlation of .23 was well within the range of values produced by the latest meta-analysis (Horvath et al., 2011). However, the size of this relation varied substantially as a function of the number of prior episodes of depression reported at baseline. For clients with fewer than 3 prior episodes, the alliance-outcome correlation was substantially higher than what is commonly observed in the literature. In contrast, in the sample of 24 patients who had experienced three or more episodes, the alliance was not predictive of symptom change. If replicated, this would suggest that by ignoring interactions with patient variables the alliance-outcome correlation can be both over- and under-estimated.

Tests of interaction effects require larger sample sizes than tests of main effects. The present study could thus be considered to have been under-powered. In an adequately-powered study, we may have identified more moderators. The small sample also precluded tests of therapist effects or the interaction of therapist and client characteristics. Due to paucity of research on interactions of client characteristics and the alliance, we conducted exploratory analyses of multiple potential moderators.

Despite these limitations, the study makes a novel contribution in finding a significant interaction between the alliance and an important client variable in predicting outcome. The fact that this finding was obtained after correcting for multiple comparisons, and that it remained significant after controlling for several potential confounds, suggests that it may be robust. The data were well-suited for our research question, as they allowed for the control of temporal confounds, and the alliance ratings were obtained from observers who were blind to treatment outcomes as well as to most client characteristics. Additionally, using observer ratings avoids the potential for the shared variance confound that exists when clients' ratings are used both for the alliance and for the outcome variable. It is important to note that the interaction between prior episodes and the alliance in the prediction of outcome could not be accounted for by differences in the means or variances of the measures of alliance or outcome. Thus, it does not appear to be a statistical artifact.

Ma and Teasdale (2004) found evidence that patients with 3 or more prior episodes report more childhood adversity, an earlier age of first onset of depression and depressive relapses that more often came “out of the blue” when compared to patients with less recurrent forms of depression. Additionally, it is this group with 3 or more prior episodes that evidences the benefit of an intervention to prevent relapse. These findings may be taken to suggest that patients from the 0–2 vs. 3 or more prior episodes represent essentially different subgroups. Consistent with this research, less recurrent forms of depression may be understood as more reactive to negative, as well as positive, life events, whereas more recurrent forms may indicate the presence of ruminative and autonomous depressogenic processes. Similarly,

Wakefield and Schmitz (2013) argue that the recurrence of depressive episodes can be understood as an indicator of underlying pathology in the individual, as opposed to reactions to life stressor and contextual variables. It is possible that patients with less recurrent depressions tend to be more reactive to positive and negative interpersonal interactions, including those that are captured in assessments of the therapeutic alliance. For those with recurrent depressions, however, the relationship with their therapist, as is true of their interpersonal experiences generally, might have little impact on the course of their depressive episode, relative to therapy processes that address the intrapsychic processes that are known to be especially problematic in this group.

Although it is widely held that clients are helped differentially by different aspects of therapy, there are few findings in the literature that speak to this. The existence of an interaction between prior episodes and the alliance in the prediction of subsequent symptom change, as well as other interactions between process variables and client characteristics (e.g., Strunk et al., 2010) adds empirical support to this clinical intuition. However, these findings also present a challenge for psychotherapy research and theories of the mechanisms of therapeutic change. Indeed, the existence of substantial moderators of process-outcome correlations might be responsible for the difficulty in identifying mechanisms of change in therapy (DeRubeis et al., 2013). Therapist variables are also likely to interact with client characteristics and the alliance to influence outcome. Thus, in the interest of achieving a better and more nuanced understanding of mechanisms of change in treatment, there is a great need to explore client and therapist variables that moderate this and other process-outcome relationships. Consistent with recent calls to personalize treatments according to patient characteristics (DeRubeis et al., 2014), this type of research would facilitate the tailoring of psychological interventions to specific individuals.

Acknowledgments

This research was supported in part by National Institute of Mental Health (NIMH) grant 2-R01-MH-060998-06.

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Figure 1.

Predicted association between therapeutic alliance and subsequent symptom change across prior depressive episodes

Figure 2.
Observed relationship between early ratings of the therapeutic alliance and subsequent change, by prior number of episodes

Table 1

Characteristics of the sample and bivariate associations between client baseline characteristics, WAI-O ratings and subsequent change

			WAI-O	Subsequent Change
	<i>M or %</i>	<i>(SD) or n</i>	<i>r</i>	<i>r</i>
WAI-O	52.5	5.41	--	0.23***
Subsequent Change in BDI	12.2	(8.51)	0.23***	--
Demographics				
Years of education	14.6	(2.50)	-0.10	0.08
Female %	58%	35	0.02	0.02
Age	40.3	(11.51)	0.03	0.06
Married or cohabiting %	30%	18	-0.05	0.17
IQ	109.7	(10.21)	-0.12	0.17
Personality				
NEO - FFI				
Agreeableness (0 – 48)	28.4	(6.38)	0.27	0.12
Conscientiousness (0 – 48)	26.6	(8.63)	0.17	0.07
Extraversion (0 – 48)	20.7	(6.53)	0.08	0.01
Neuroticism (0 – 48)	32.4	(7.56)	0.00	0.05
Openness (0 – 48)	28.4	(6.72)	-0.06	0.15
Number of Cluster B Criteria	2.4	(2.49)	-0.08	-0.24
Number of Cluster C Criteria	4.3	(3.50)	-0.11	-0.01
History of depression				
Met atypical depression criteria %	28%	17	0.01	0.00
Depression severity – HRSD (0–53)	23.9	(3.08)	-0.20	-0.14
Duration of current episodes (mo.)	31.4	(35.23)	-0.19	-0.04
Number of prior episodes	2.3	(2.00)	-0.19	0.01
Prior antidepressant treatments	1.7	(1.81)	-0.26	-0.04
Age of onset of first episode	24.2	(12.95)	0.17	0.09
Other clinical features				-0.01
Number of life events – PERI (0 – 102)	6.8	(4.37)	0.14	0.15
Past history of substance abuse %	28%	17	-0.07	0.14
Attributional Style - ASQ	0.36	(3.05)	-0.23	-0.14
Anxiety severity – HAM-A (0 – 48)	16.6	(5.93)	-0.17	0.09
Hopelessness – BHS (0 – 20)	11.2	(5.16)	0.18	0.08

Note. WAI – O – Working Alliance Inventory, Observer ratings, Outcome – residualized change in the BDI, IQ – Intelligent Quotient, HRSD – Hamilton Rating Scale for Depression, NEO – FFI – NEO – Five Factor Inventory, ASQ – Attributional Styles Questionnaire (positive – negative), HAI – Hamilton Anxiety Rating Scale, BHS – Beck Hopelessness Scale.

p < .001. For dichotomous variables, point-biserial correlations with the WAI-O and subsequent change are provided. For continuous variables, Pearson product-moment correlations with the WAI-O and subsequent change are provided.