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Change in Self-Discrepancy, Anxiety, and Depression in Individual Therapy

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This study tested hypotheses of change in the real-ideal (RI) and real-ought (RO) self-discrepancies over the course of therapy, based on Rogers's (1959) theory of personality change in therapy. Before and after therapy with 20 therapists of diverse theoretical orientations at a university counseling center, 99 undergraduate and graduate students completed three instruments that measure both self-discrepancies: the Self-Concept Questionnaire—Personal Constructs, the Self-Concept Questionnaire—Conventional Constructs, and the Abstract Measures. Participants also completed the Beck Depression Inventory-II, State-Trait Anxiety Inventory Trait scale, and the Symptom Checklist-90-R Anxiety and Depression scales. Therapy outcome showed substantial decreases on all measures. Changes in the RI and RO self-discrepancies were associated with changes in anxiety and depression. Change in the RI self-discrepancy was associated with change in the RO self-discrepancy. Decreases in self-discrepancy comprised increases in real self and decreases in ideal self and ought self. Findings were independent of therapist theoretical orientation. The findings support the use of the self-discrepancy instruments in future research on therapy process and outcome. The findings also provide a basis for incorporating the self-discrepancy constructs into theory and research on mechanisms of therapeutic change.

Keywords: self-discrepancy, anxiety, depression, therapy process, personality change

In his theory of personality change in effective therapy, Rogers (1959) theorized that the client experiences a decrease in the discrepancy between the real self (the self as the person sees the self) and the ideal self (the self as the person would like to be in the person's own eyes). The real-ideal (RI) discrepancy, which is a negative self-evaluation for not meeting one's own expectations of oneself, is a personality predisposition to psychological distress. In effective therapy, a decrease in RI discrepancy theoretically leads to a decrease in anxiety and depression (Rogers, 1959).

Higgins (1987; Higgins, Klein, & Strauman, 1985) introduced the discrepancy between the real self¹ and the ought self (the self as the person believes others think the person ought or should be). The RO discrepancy is a negative self-evaluation for not meeting one's perception of others' expectations of oneself. Higgins (1987; Higgins et al., 1985) hypothesized that the RO discrepancy is uniquely related to anxiety and the RI discrepancy is uniquely related to depression. However, there has been inconsistent sup-

port for Higgins's (1987; Higgins et al., 1985) hypotheses in studies of psychopathology and studies of personality. Both hypotheses have been tested in eight studies that used clinical samples or clinical measures with nonclinical samples and that followed Strauman, Vookles, Berenstein, Chaiken, and Higgins's (1991) guidelines to control the alternate discrepancy and the alternate emotional distress in testing the hypotheses. Three of these studies supported both hypotheses (Strauman, 1989, 1992; Strauman & Higgins, 1988, Study 2), but two found the opposite of both hypotheses (Tangney, Niedenthal, Covert, & Barlow, 1998; Weilage & Hope, 1999), one found the opposite of the RO discrepancy hypothesis and did not support the RI discrepancy hypothesis (Bryan, Watson, Babel, & Thrash, 2008), one supported only the RI discrepancy hypothesis (Bruch, Rivet, & Laurenti, 2000), and one supported neither hypothesis (Scott & O'Hara, 1993). The absence of support for Higgins's (1987) theory may be explained by the high correlation between the RI and RO discrepancies (Tangney et al., 1998) and the lack of evidence for the discriminant validity of the two self-discrepancy constructs as measured by Higgins's (1987) Selves Questionnaire (Gramzow, Sedikides, Panter, & Insko, 2000; Phillips & Silvia, 2005; Tangney et al., 1998). Several studies using the Selves Questionnaire have found associations of both self-discrepancies with both anxiety and depression (Fairbrother & Moretti, 1998; Kinderman & Bentall, 1996; Scott & O'Hara, 1993; Tangney et al., 1998; Weilage & Hope, 1999).

There is a theoretical reason for extending to the RO discrepancy Rogers's (1959) theory that the RI discrepancy is a person-

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The self-discrepancy instruments can be viewed at <http://www.wm.edu/research/watson>

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¹ Higgins's term is *actual self*. Rogers's earlier term *real self* is used in the present study.

ality predisposition to anxiety and depression (Watson, Bryan, & Thrash, 2010). This is an extension of Rogers's (1959) theory of the development of self-discrepancy, which states that the introjection of conditions of worth from significant others is the basis of a high RI discrepancy. Watson et al. (2010) reasoned that Rogers's (1959) concept of conditions of worth from significant others can be operationally defined as a high RO discrepancy. With conditions of worth defined as a high RO discrepancy, Rogers's (1959) theory can be interpreted to say that a high RO discrepancy is the basis of a high RI discrepancy. This interpretation of Rogers's (1959) theory is supported, in part, by Watson et al.'s (2010) study of a clinical sample and a nonclinical sample, using recently developed self-discrepancy instruments, which are used in the present study. The study found that the two discrepancies are factorially distinct, supporting discriminant validity. This finding supports the two discrepancies as distinct constructs and suggests that individuals differentiate between them. Nevertheless, the study also found a high correlation between the two discrepancies (though not high enough to support a one-factor model). This finding is consistent with the theory of the RO discrepancy as a basis for the RI discrepancy, though it does not prove causality. The study also found correlations of both discrepancies with both anxiety and depression. This finding is consistent with the theory that both the RI discrepancy and the RO discrepancy are predispositions to both anxiety and depression, though it does not provide evidence of a causal relationship.

Overview of Past Studies of Self-Discrepancy in Therapy

Several therapy outcome studies have used self-discrepancy as an outcome measure. Rogers and Dymond (1954) introduced the RI discrepancy as an outcome measure in their study of client-centered therapy, finding a significant decrease in discrepancy measured with the Butler–Haigh Q-sort (Butler & Haigh, 1954) for the therapy group as compared with a wait-list control group. In a study of time limits on the length of therapy in client-centered and Adlerian therapy, Shlien, Mosak, and Dreikurs (1962), also using the Butler–Haigh Q-sort, found for both therapeutic approaches that time limits accelerated clients' decreases in RI discrepancy as compared with no time limits and that the outcome was significant in comparison with a wait-list control group. In outcome research on cognitive-behavioral and interpersonal therapies for major depressive episode, Strauman et al. (2001), using an interview version of the Selves Questionnaire (Higgins, Bond, Klein, & Strauman, 1986) to measure the RI and RO discrepancies, found significant decreases in the RI discrepancy, but not in the RO discrepancy, in these two therapies as compared with a medication control group. In outcome research on psychodynamic and cognitive therapies for anxiety and depression with no control group, Gibbons et al. (2009), using the Selves Questionnaire (Higgins, 1987) to measure both discrepancies, found significant decreases in the RI discrepancy, but not in the RO discrepancy, in both therapies. In summary, these four outcome studies showed significant decreases in the RI discrepancy in five types of therapy, but the two studies that included the RO discrepancy showed no decrease in that discrepancy.

Two of the outcome studies described above also tested the association of change in self-discrepancy with changes in anxiety and/or depression over the course of therapy (Gibbons et al., 2009; Strauman et al., 2001). Strauman et al. (2001) tested the association of change in the RI discrepancy with change in depression, finding that the two changes were significantly associated in both cognitive-behavioral and interpersonal therapies. Gibbons et al. (2009) tested the association of changes in the RI and RO discrepancies with changes in anxiety and depression, finding that changes in both discrepancies were significantly associated with change in anxiety, but not with change in depression, in both psychodynamic and cognitive therapies. Though the results of these two studies were different, each showed that a change in self-discrepancy was associated with a change in psychological distress in two types of therapy.

Hypotheses of the Present Study

In the present nonexperimental study of therapy by therapists of diverse theoretical orientations, we extended the research on the association of change in self-discrepancy with change in psychological distress. The first hypothesis was that change in the RI discrepancy and change in the RO discrepancy are each associated with changes in both anxiety and depression. The second hypothesis, which uniquely extended previous research, was that change in the RI discrepancy is associated with change in the RO discrepancy. These hypotheses were based on Rogers's (1959) theory of therapeutic changes in the RI discrepancy and psychological distress and on the extension of that theory to the RO discrepancy, as described earlier.

The third hypothesis, uniquely extending previous research, addressed how each of the components of the RI discrepancy, the real self and the ideal self, changes when the RI discrepancy decreases. This hypothesis was based on Rogers's (1959) theory, which states that when the RI discrepancy decreases, the real self becomes more congruent with the ideal self and the ideal self becomes more realistic and achievable. Accordingly, it was hypothesized that a decrease in RI discrepancy consists of movement of the real self toward the ideal self and movement of the ideal self toward the real self. We extended this hypothesis to the RO discrepancy on the basis of the theoretical rationale described earlier.

The hypotheses were tested using three recently developed instruments that measure both self-discrepancies (Watson et al., 2010). Research on the psychometric properties of these instruments has shown discriminant validity in measuring the RI discrepancy and the RO discrepancy (Watson et al., 2010). The three instruments, rather than just one, were used to evaluate the utility of each instrument in measuring change in therapy.

Method

Participants

Participants were 99 clients and 20 therapists at the counseling center of a small state university in the middle Atlantic/southeastern United States. Clients were 77 women and 22 men, ranging in age from 18 to 32 years ($M = 21.1$, $SD = 2.6$). Of the 99 clients,

9 were freshmen, 17 were sophomores, 32 were juniors, 17 were seniors, and 24 were graduate students. Regarding ethnicity, 84 were European American/non-Hispanic, 6 were multiracial/biracial, 4 were Latino-a/Hispanic, 3 were Middle Eastern, and 2 were Asian. Ninety-eight were United States citizens. All but one were single and never married; one was separated.

Therapists were 13 women and 7 men, ranging in age at the beginning of the study from 24 to 62 years. Six had PhDs in counseling psychology, two had PsyDs in clinical psychology, one had a PhD in clinical psychology, one had an EdS in counseling psychology, one had an MSW in clinical social work, seven were advanced doctoral students in clinical psychology, and two were predoctoral interns in counseling psychology. Eighty-three of the clients saw the therapists with professional degrees, and 16 saw the therapists who were advanced doctoral students or interns. Fifteen of the therapists were European American/non-Hispanic, two were African American, two were Latino-a/Hispanic, and one was Asian American. The therapists' theoretical orientations were integrative (10), interpersonal (5), cognitive/cognitive-behavioral (3), and eclectic (2).

Self-Discrepancy Instruments

Self-Concept Questionnaire—Personal Constructs (PC). This idiographic instrument uses bipolar personal constructs (Kelly, 1955) to measure real self, ideal self, and ought self (Watson, 2004). The participant lists six characteristics and their opposites that describe the real self ("yourself as YOU see yourself in your own eyes"), the ideal self ("yourself as YOU would like to be in your own eyes"), and the ought self ("yourself as OTHERS think you ought or should be"). Scoring of the RI discrepancy (PC-RI) and the RO discrepancy (PC-RO) is described by Watson et al. (2010).

The PC-RI and PC-RO have internal consistency alpha coefficients of .91 to .92 and .90 to .91, respectively, and test-retest reliability coefficients of .72 and .74, respectively (Watson et al., 2010). Test-criterion validity is supported by correlations predicting anxiety and depression measured 4 weeks later (Watson et al., 2010).

Self-Concept Questionnaire—Conventional Constructs (CC). This instrument uses 28 items identified by Parker and Veldman (1969) as the four highest-loading items on each of seven factors in a factor analysis of the Adjective Check List (Gough & Heilbrun, 1965) to measure real self, ideal self, and ought self (Watson, 2004). Participants rate the 28 characteristics in response to the instructions and on the scale used for the Self-Concept Questionnaire—Personal Constructs, as described earlier. Scoring of the RI discrepancy (CC-RI) and the RO discrepancy (CC-RO) is described by Watson et al. (2010).

The CC-RI and CC-RO have internal consistency alpha coefficients of .82 to .90 and .84 to .90, respectively, and test-retest reliability coefficients of .77 and .72, respectively, although the reliability coefficients were inflated by the stability of their error terms (Watson et al., 2010). Test-criterion validity is supported by correlations predicting anxiety and depression measured 4 weeks later (Watson et al., 2010).

Abstract Measures (AM) of RI and RO Discrepancies. This is a modified version of Shlien's (1962) Abstract Apparatus, which he termed *abstract* because it contains no personality characteris-

tics (Watson, 2004). The RI discrepancy (AM-RI) and RO discrepancy (AM-RO) are each measured with nine sets of two squares that intersect from 0% to 100%. One square represents the real self and the other square represents the ideal self or ought self, which are defined in the same way as in the Self-Concept Questionnaires. The participant selects the pair of squares with the intersection that shows how much the two selves are alike in general. Scoring is described by Watson et al. (2010, Study 1).

The AM-RI and AM-RO have test-retest reliability coefficients of .64 and .51, respectively (Babel, 2003). Internal consistency does not apply to these one-item instruments. Test-criterion validity is supported by correlations with measures of anxiety and depression (Watson et al., 2010, Study 1).

Anxiety Instruments

State-Trait Anxiety Inventory Trait scale anxiety factor. The State-Trait Anxiety Inventory Trait scale (Spielberger, 1983) has an internal consistency alpha coefficient of .90 and a test-retest reliability coefficient of .65 to .86 (Spielberger, 1983). Test-criterion validity is supported by strong correlations with other measures of trait anxiety (Spielberger, 1983). The Trait scale has been found to yield a seven-item anxiety factor that shows stronger discriminant validity in relation to measures of depression than does the full Trait scale (Bieling, Antony, & Swinson, 1998; Vautier, Callahan, Moncany, & Sztulman, 2004). In the present study, the anxiety score was computed from these seven items to generate the State-Trait Anxiety Inventory Trait scale anxiety factor instrument (STAI-T-A) used in the present study.

Anxiety scale of the Symptom Checklist-90-Revised. The Anxiety scale of the Symptom Checklist-90-Revised (SCL-A; Derogatis, 1994) has an internal consistency alpha coefficient of .85 to .88 and a test-retest reliability coefficient of .80 (Derogatis, 1994). Test-criterion validity is supported by significant associations with clinical diagnosis (Derogatis, 1994).

Depression Instruments

Beck Depression Inventory-II. The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) has an internal consistency alpha coefficient of .90 (Steer, Ball, Ranieri, & Beck, 1999) and a test-retest reliability coefficient of .93 (Beck et al., 1996). Test-criterion validity is supported by strong correlations with other measures of depression (Beck et al., 1996).

Depression scale of the Symptom Checklist-90-Revised. The Depression scale of the Symptom Checklist-90-Revised (SCL-D; Derogatis, 1994) has an internal consistency alpha coefficient of .90 and a test-retest reliability coefficient of .75 to .82 (Derogatis, 1994). Test-criterion validity is supported by significant associations with clinical diagnosis (Derogatis, 1994).

Procedure

Clients requesting individual therapy who were not in crisis were invited to participate for monetary compensation of US\$40 on completion of the posttherapy research questionnaire. Of 120 clients who volunteered, 99 (82.5%) completed the study. Length of therapy ranged from 3 to 35 sessions ($Mdn = 7$, $M = 8.5$, $SD = 5.9$).

The research was conducted in accordance with the ethical standards of the American Psychological Association and approved by the university Protection of Human Subjects Committee. Informed consent was obtained in writing from clients and therapists who participated.

The research was implemented in a manner intended to minimize effects on the conduct of therapy. The invitation to participate, informed-consent forms, research questionnaires, and payments were administered by the counseling center receptionists. Clients were informed that their responses would be confidential and not disclosed to their therapists. Clients and therapists were informed that the research would not include any information from the therapists or their clinical records. Therapists were not told by the researchers or the receptionists who of their clients volunteered to participate. Therapists were informed that that the research was a therapy outcome study using measures of anxiety, depression, and self-discrepancy, but they were blind to the hypotheses of the study. The therapists who together saw 74% of the participating clients had been informed about the study 8 months before it began, making it less likely that they would remain mindful of the outcome measures used in the study. Therapists were asked on completion of their participation, "Has your participation in the psychotherapy research project at the Counseling Center affected the way that you do therapy?" On a scale of 1 (*not at all*) to 7 (*very much*), 17 of the 20 therapists, who treated 86% of the clients, responded 1, two therapists responded 2, and one therapist's response was missing. The responses suggest that the research had a negligible effect on the conduct of therapy.

Participating clients completed the research instruments before therapy and after termination. The self-discrepancy instruments were completed first in the following order: personal construct, conventional construct, and abstract. Within each instrument, the orders of real self, ideal self, and ought self were counterbalanced, yielding six orders of the self-discrepancy instruments. The anxiety and depression instruments were completed second in two partially counterbalanced orders. The 12 orders of the two sets of instruments were randomly assigned, and each participant received the same order at pretest and posttest.

Results

Preliminary Analyses

Comparisons of the attrition group ($N = 21$) with the final sample ($N = 99$) on pretherapy variables showed no significant differences on t tests. All analyses were conducted on the final sample that completed the study.

Descriptive statistics for the pretest² and posttest measures of self-discrepancy, anxiety, and depression are presented in Table 1. Intercorrelations of the pretest and posttest variables are presented in Table 2. All variables, including pretest–posttest change scores, showed normal distributions, except that posttest PC-RI and PC-RO showed abnormal kurtosis. These two variables were transformed using a square root function, yielding normal distributions, and were used together with similar transformations of their corresponding pretest scores in the intercorrelations in Table 2 and in the analysis of therapy outcome.

To examine the comorbidity of anxiety and depression in the sample, two sets of analyses were done. In the first set, correlations

Table 1
Descriptive Statistics for Self-Discrepancies, Anxiety, and Depression (N = 99)

Measure	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Real–Ideal discrepancy						
PC-RI	2.14	1.00	0.26–4.57	1.59	0.90	0.00–5.35
CC-RI	1.75	0.61	0.50–3.32	1.40	0.56	0.25–3.57
AM-RI	0.56	0.20	0.13–1.00	0.47	0.20	0.13–1.00
Real–Ought discrepancy						
PC-RO	2.11	0.95	0.17–4.09	1.61	0.91	0.04–5.61
CC-RO	1.79	0.58	0.36–3.14	1.54	0.52	0.64–3.43
AM-RO	0.59	0.18	0.25–0.88	0.52	0.18	0.13–1.00
Anxiety						
STAI-T-A	17.75	4.54	7.00–26.00	14.48	4.53	7.00–28.00
SCL-A	1.06	0.78	0.00–3.20	0.55	0.61	0.00–2.60
Depression						
SCL-D	1.70	0.79	0.00–3.54	0.90	0.81	0.00–3.54
BDI-II	19.27	9.89	0.00–41.00	9.96	8.56	0.00–42.00

Note. PC = personal constructs; CC = conventional constructs; AM = abstract measure; RI = real–ideal discrepancy; RO = real–ought discrepancy; STAI-T-A = State-Trait Anxiety Inventory-Trait scale-Anxiety factor; SCL-A = Symptom Check List-90-R Anxiety scale; SCL-D = Symptom Check List-90-R Depression scale; BDI-II = Beck Depression Inventory-II.

of pretest scores on the two anxiety measures with pretest scores on the two depression measures were computed. Results showed significant correlations ranging from $r = .50$ to $r = .62$ ($ps < .001$), indicating substantial pretherapy comorbidity in the sample. In the second set of analyses, partial correlations of change on each of the two anxiety measures with change on each of the two depression measures were computed, controlling the pretest score on each measure. Results showed significant partial correlations ranging from $r_{ab.cd} = .63$ to $r_{ab.cd} = .78$ ($ps < .001$), indicating substantial associations of changes in the two types of comorbid distress over the course of therapy. Because change in anxiety and change in depression were so highly correlated and appeared to have little unique reliable variance, we did not attempt to statistically separate the two variances in the analyses. Instead, we examined both anxiety and depression as comorbid distresses.

Because of the large range in the length of therapy (3–35 sessions), we examined the associations of length of therapy with changes on the self-discrepancy, anxiety, and depression measures by computing the partial correlation of length of therapy with the change score on each of the measures, controlling the pretest score on each measure. First, the length of therapy variable, which had mildly abnormal skew and very abnormal kurtosis, was transformed with a square root function, yielding normal skew and mildly abnormal kurtosis. Results showed significant negative partial correlations of length of therapy with changes on two of the six self-discrepancy measures, AM-RI, $r_{ab.c} = -.32$ ($p < .01$), and

² The pretest data in the present study are a subset of the data in one of two studies in Watson et al. (2010), which analyzed the psychometric properties of the self-discrepancy instruments. The present study, which focused on change in therapy, addressed completely different issues; none of the relationships reported in it was reported in the previous publication.

Table 2
Intercorrelations of Self-Discrepancy, Depression, and Anxiety Variables (N = 99)

Measure	1. PC-RI		2. PC-RO		3. CC-RI		4. CC-RO		5. AM-RI		6. AM-RO		7. PC-RI		8. PC-RO		9. CC-RI		10. CC-RO		11. AM-RI		12. AM-RO		13. BDI-II		14. SCL-D		15. STAI-T-A		16. SCL-A		17. BDI-II		18. SCL-D		19. STAI-T-A		20. SCL-A											
	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2	time 1	time 2												
1	—		.72		.71		.51		.64		.28		.46		.31		.53		.31		.46		.33		.45		.49		.35		.21		.18		.27		.21		.24											
2		—		.53		.40		.54		.40		.41		.42		.45		.44		.41		.42		.45		.37		.33		.23		.10		.14		.23		.24		.17										
3			—		.70		.64		.64		.29		.47		.30		.65		.32		.46		.35		.54		.58		.54		.24		.23		.23		.35		.27		.27									
4				—		.38		.38		.39		.44		.38		.39		.44		.51		.44		.44		.39		.44		.43		.20		.17		.22		.21		.21		.07								
5					—	.50		.43		.30		.46		.43		.30		.46		.33		.51		.45		.52		.53		.40		.25		.19		.23		.11		.10		.10								
6						—		.28		.34		.44		.28		.34		.44		.34		.44		.49		.25		.22		.07		.10		.24		.28		.16		.14		.14								
7							—		.79		.76		.64		.79		.76		.65		.64		.58		.58		.36		.39		.30		.22		.55		.56		.52		.41		.41							
8								—			.53		.53		.66		.53		.66		.53		.63		.63		.21		.21		.15		.42		.42		.38		.25		.25		.25							
9									—		.60		.60		.67		.60		.67		.48		.56		.56		.41		.46		.22		.45		.52		.50		.39		.39		.39							
10										—		.48		.48		.48		.48		.48		.48		.54		.30		.32		.21		.26		.46		.46		.40		.40		.33		.33						
11												.54		.54		.54		.54		.54		.54		.54		.43		.39		.34		.23		.52		.52		.49		.36		.36		.36						
12																														.28		.28		.51		.48		.42		.31		.31								
13																														.82		.60		.55		.51		.40		.53		.53								
14																															.62		.46		.52		.38		.51		.51		.51							
15																															.51		.24		.24		.41		.28		.47		.47							
16																																.51		.35		.34		.29		.47		.47		.47						
17																																		.87		.70		.70		.73		.73		.73						
18																																														.83				
19																																																.68		
20																																																		.68

Note. PC = personal constructs; CC = conventional constructs; AM = abstract measure; RI = real-ideal discrepancy; RO = real-ought discrepancy; BDI-II = Beck Depression Inventory-II; SCL-D = Symptom Checklist-90-Revised-Depression scale; STAI-T-A = State-Trait Anxiety Inventory-Trait scale-Anxiety factor; SCL-A = Symptom Checklist-90-Revised-Anxiety scale. Effect size: $r = .10$ is small; $r = .30$ is medium; $r = .50$ is large (Cohen, 1988). If $r = .20-.25$, $p < .05$. If $r = .26-.34$, $p < .01$. If $r \geq .35$, $p < .001$. If $r \leq .19$, $p = ns$.

AM-RO, $r_{ab.c} = -.23$ ($p < .05$); both of the anxiety measures, STAI-T-A, $r_{ab.c} = -.26$ ($p < .05$), and SCL-A, $r_{ab.c} = -.36$ ($p < .001$); and one of the two depression measures, SCL-D, $r_{ab.c} = -.37$ ($p < .001$). These results indicate that longer therapy was associated with less change. The findings suggest that participants who experienced less change remained in therapy longer. It appears that length of therapy is an effect of change rather than a cause. Accordingly, length of therapy was not used as a predictor or control variable.

The 99 clients were nested within 20 therapists, which raised the possibility of nonindependence among clients having the same therapist. To explore this possibility, we computed intraclass correlation coefficients (ICCs) for all of the primary study variables using the multilevel modeling program HLM 6.08 (Raudenbush, Bryk, & Congdon, 2009). Most ICCs were .00 or near .00 (median = .00; maximum = .17), indicating that virtually all variances in scores were within therapists rather than between therapists, i.e., scores tended to be independent even among clients having the same therapist. We concluded that the nesting of clients within therapists produced negligible dependence.

Therapy Outcome

Before testing the hypotheses, we evaluated therapy outcome. We compared pretest and posttest scores in a one-way within-subjects multivariate analysis of variance (MANOVA) on the self-discrepancy measures and in a similar MANOVA on the anxiety and depression measures. As shown in Table 3, there were significant and substantial decreases on all measures ($ps < .001$).

Tests of Hypotheses

Associations of changes in self-discrepancies with changes in anxiety and depression. To test the hypotheses that change in the RI discrepancy and change in the RO discrepancy are each associated with changes in anxiety and depression, we computed partial correlations of self-discrepancy change scores with anxiety or depression change scores in separate analyses for each self-discrepancy measure with each anxiety or depression measure, controlling the pretest scores on self-discrepancy and on anxiety or depression.³ We controlled the pretest scores because correlations of raw, pretest minus posttest, change scores with pretest scores, which ranged from $r = .47$ to $r = .68$ ($ps < .001$) in the present sample, create an ambiguity of whether raw change scores are at least partly attributable to the levels of the pretest scores rather than to true change (e.g., Cohen, Cohen, West, & Aiken, 2003; Tardis, 2000). As shown in Table 4, the hypothesis was supported by significant partial correlations of .32 to .57 ($ps \leq .001$) in 20 of the 24 results, using a Bonferroni-corrected $\alpha = .002$ as the required level of significance for the 24 tests. The four nonsignificant results all were with SCL-A, one of the two measures of anxiety. Multiple regression analyses, which corresponded to the partial correlation analyses and in which therapist theoretical orientation was represented by a set of dummy codes (Cohen et al., 2003), showed that none of these associations was significantly moderated by theoretical orientation.

Association of changes in the RI and RO discrepancies. To test the hypothesis that change in the RI discrepancy is associated with change in the RO discrepancy, for each self-

Table 3
Pretest–Posttest One-Way MANOVAs on Self-Discrepancies, Anxiety, and Depression ($N = 99$)

Measure	Λ	F	d [95% CI]
Self-discrepancies			
Multivariate	0.60***	10.53***	
Real-ideal			
PC-RI		30.77***	0.79 [0.72, 0.86]
CC-RI		47.93***	1.01 [0.89, 1.12]
AM-RI		22.62***	0.64 [0.60, 0.68]
Real-ought			
PC-RO		25.78***	0.74 [0.67, 0.81]
CC-RO		20.44***	0.65 [0.54, 0.75]
AM-RO		19.17***	0.54 [0.51, 0.58]
Anxiety and depression			
Multivariate	0.44***	29.97***	
Anxiety			
STAI-T-A		43.52***	0.94 [0.04, 2.34]
SCL-A		50.04***	0.96 [0.80, 1.15]
Depression			
SCL-D		104.04***	1.45 [1.30, 1.70]
BDI-II		109.24***	1.46 [−0.49, 4.11]

Note. PC = personal constructs; CC = conventional constructs; AM = abstract measure; RI = real-ideal discrepancy; RO = real-ought discrepancy; STAI-T-A = State-Trait Anxiety Inventory-Trait scale-Anxiety factor; SCL-A = Symptom Check List-90-R Anxiety scale; SCL-D = Symptom Check List-90-R Depression scale; BDI-II = Beck Depression Inventory-II. Effect size: $d = 0.20$ is small; $d = 0.50$ is medium; $d = 0.80$ is large (Cohen, 1988).

*** $p < .001$.

discrepancy instrument we computed partial correlations of the change scores, controlling the pretest score on each discrepancy. As hypothesized, the partial correlations for all of the three discrepancy instruments were significant at $p < .001$, with $r_{ab.cd} = .80$ [95% confidence interval = .72, .86] and .72 [.61, .80] for the personal construct and conventional construct instruments, respectively, and an $r_{ab.cd} = .35$ [.16, .51] for the abstract instrument. Multiple regression analyses, which corresponded to the partial correlation analyses and in which therapist theoretical orientation was represented by a set of dummy codes, showed that none of these associations was significantly moderated by theoretical orientation.

Real self, ideal self, and ought self. We tested the hypothesis that a decrease in self-discrepancy consists of movement of the real self toward the ideal self and ought self and movement of the ideal self and ought self toward the real self. First, real self and ideal self scores were computed for the personal

³ As noted in the Preliminary Analyses, ICCs indicated that nearly all variability in most variables occurred within therapists rather than between therapists. To more fully explore the issue of nesting of clients within therapists, we also conducted a set of 24 multilevel analyses that correspond to the 24 associations presented in Table 4, with nesting of clients within therapists taken into account. In all 24 analyses, random error terms representing variability in slopes across therapists were nonsignificant (see Nezlek, 2001). These findings indicate that the associations between change in discrepancy and change in distress are independent of therapist. Furthermore, multilevel analyses corresponding to the three analyses reported in the section "Association of changes in the RI and RO discrepancies" yielded no significant random error terms representing variability in slopes across therapists.

Table 4
Partial Correlations [and 95% Confidence Intervals] of Self-Discrepancy Change Scores With Depression and Anxiety Change Scores Controlling Pretest Scores (N = 99)

Self-discrepancy	Depression		Anxiety	
	BDI-II	SCL-D	STAI-T-A	SCL-A
Real-ideal				
PC-RI	.57*** [.42, .69]	.51*** [.35, .64]	.54*** [.38, .67]	.35*** [.16, .51]
CC-RI	.43*** [.25, .58]	.39*** [.21, .55]	.44*** [.27, .59]	.28*** [.09, .45]
AM-RI	.47*** [.30, .61]	.54*** [.38, .67]	.48*** [.31, .62]	.34*** [.15, .50]
Real-ought				
PC-RO	.47*** [.30, .61]	.40*** [.22, .55]	.33*** [.14, .50]	.21 ^a [.13, .39]
CC-RO	.44*** [.27, .59]	.42*** [.24, .57]	.38*** [.20, .54]	.30*** [.11, .47]
AM-RO	.40*** [.22, .55]	.36*** [.18, .52]	.32*** [.13, .49]	.18 ^a [-.02, .36]

Note. BDI-II = Beck Depression Inventory-II; SCL-D = Symptom Check Lis-90-R Depression scale; STAI-T-A = State-Trait Anxiety Inventory-Trait scale-Anxiety factor; SCL-A = Symptom Check List-90-R Anxiety scale; PC = personal constructs; CC = conventional constructs; AM = abstract measure; RI = real-ideal discrepancy; RO = real-ought discrepancy. Bonferroni-corrected $\alpha = .002$ for the 24 tests. Effect size: $r = .10$ is small; $r = .30$ is medium; $r = .50$ is large (Cohen, 1988).

^a These correlations do not meet the Bonferroni-corrected $\alpha = .002$ criterion.

* $p < .05$. ** $p < .01$. *** $p < .001$.

construct and conventional construct measures, reverse scoring items for which the rating of the ideal self was lower than that of the real self or for which the ratings of both self-components were the same and below the midpoint of the scale. The same procedure was used to compute the real self and ought self scores. The hypothesis applies to clients who had a decrease in self-discrepancy, so descriptive statistics for the subsample that had decreases in self-discrepancy on all four personal construct and conventional construct RI and RO discrepancies are shown in Table 5. Pretest and posttest scores were compared in a one-way within-subjects MANOVA. As shown in Table 6, the hypothesis was supported by significant increases in real self on all four measures ($ps < .001$). The hypothesis also was supported by significant decreases in ideal self on both measures of ideal self ($ps < .05$) and by a significant decrease in ought self

on the personal construct measure ($p < .05$). The nonintersection of the 95% confidence intervals for the effect sizes of the changes in real self with those of the changes in ideal self and ought self indicated larger effect sizes for the changes in real self than for the changes in ideal self and ought self. In summary, as hypothesized, movement of the real self toward the ideal self and ought self was shown by increases in real self, and movement of the ideal self and ought self toward the real self was shown by decreases in ideal self and ought self. The larger effect sizes for real self than for ideal self and ought self showed more movement by the real self. A preliminary 2 (pretest/posttest) \times 4 (therapist theoretical orientation) MANOVA yielded a nonsignificant multivariate test of the interaction, showing that pretest-posttest changes were not moderated by theoretical orientation.

Table 5
Descriptive Statistics for Real Self, Ideal Self, and Ought Self for Clients Whose Self-Discrepancies Decreased on All PC and CC Real-Ideal and Real-Ought Discrepancies (N = 49)

Measure	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
PC real-ideal discrepancy						
PC real self	4.09	0.97	2.43-6.22	5.09	0.80	3.43-7.00
PC ideal self	6.56	0.42	5.43-7.00	6.43	0.48	5.09-7.00
CC real-ideal discrepancy						
CC real self	4.20	0.52	2.89-5.39	4.69	0.57	3.32-5.82
CC ideal self	6.18	0.38	5.14-6.93	6.03	0.45	4.68-6.86
PC real-ought discrepancy						
PC real self	3.74	0.91	2.52-6.22	4.68	0.95	3.17-6.74
PC ought self	6.16	0.56	4.22-7.00	5.97	0.65	4.48-7.00
CC real-ought discrepancy						
CC real self	3.96	0.57	2.68-5.32	4.49	0.66	3.25-6.00
CC ought self	5.96	0.47	4.44-6.89	5.87	0.57	4.68-7.00

Note. PC = personal constructs; CC = conventional constructs. PC real self and CC real self each appear twice in the table, once with ideal self and once with ought self, because items were reverse scored if indicated by the relation of real-self ratings to ideal-self ratings and the relation of real-self ratings to ought-self ratings. See Results section for details.

Table 6
Pretest–Posttest One-Way MANOVA on Real Self, Ideal Self, and Ought Self for Clients Whose Self-Discrepancies Decreased on All PC and CC Real–Ideal and Real–Ought Discrepancies (N = 49)

Measure	Λ	F	d [95% CI]
Multivariate	0.19***	22.48***	
PC real–ideal discrepancy			
PC real self		71.93***	1.74 [1.51, 2.01]
PC ideal self		4.49*	0.42 [0.30, 0.55]
CC real–ideal discrepancy			
CC real self		67.34***	1.68 [1.52, 1.83]
CC ideal self		9.46**	0.64 [0.53, 0.77]
PC real–ought discrepancy			
PC real self		62.84***	1.62 [1.35, 1.87]
PC ought self		5.79*	0.49 [0.33, 0.67]
CC real–ought discrepancy			
CC real self		54.72***	1.52 [1.34, 1.68]
CC ought self		1.48	0.27 [–0.14, 0.43]

Note. PC = personal constructs; CC = conventional constructs. Real self increased. Ideal self and ought self decreased. Effect size: $d = 0.20$ is small; $d = 0.50$ is medium; $d = 0.80$ is large (Cohen, 1988).

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The findings support the hypotheses from Rogers's (1959) theory of therapeutic changes in self-discrepancy and psychological distress. Changes in the RI and RO discrepancies were significantly associated with changes in anxiety and depression. Changes in the two self-discrepancies were significantly associated with each other. Decreases in the two self-discrepancies consisted of significant movement of the real self toward the ideal and ought selves and lesser, but significant, movement of the ideal and ought selves toward the real self. All findings were independent of the therapists' theoretical orientations.

The study extends previous research on associations of change in self-discrepancy with change in psychological distress. Strauman et al. (2001) tested the association of change in the RI discrepancy with change in depression, finding a significant association. Gibbons et al. (2009) tested the associations of changes in both the RI and RO discrepancies with changes in anxiety and depression, finding that changes in both discrepancies were significantly associated with change in anxiety but not with change in depression. The present study found significant and substantial associations of changes in both discrepancies with changes in both anxiety and depression.

The present study uniquely extended research on change in self-discrepancy by testing the hypothesis that change in the RI discrepancy is associated with change in the RO discrepancy. The findings supported the hypothesis, showing that clients who had a decrease in the RI discrepancy also had a decrease in the RO discrepancy. Change toward a more positive self-evaluation in meeting one's own expectations of oneself occurs together with change toward a more positive self-evaluation in meeting one's perception of others' expectations of oneself.

The present study also uniquely extended research on change in self-discrepancy by testing hypotheses of how each component of

the RI discrepancy, and how each component of the RO discrepancy, changes when the discrepancy decreases. The findings showed that a decrease in self-discrepancy is significant movement of the real self toward the ideal and ought selves and lesser, but significant, movement of the ideal and ought selves toward the real self. The findings suggest that in effective therapy the client experiences a decrease in high expectations of the self and a more substantial increase in meeting those expectations.

It is unlikely that the therapists made references to self-discrepancy in their conduct of therapy. The therapists were of diverse theoretical orientations and analyses showed no differences across theoretical orientations in tests of the hypotheses. Furthermore, the manner in which the research was implemented and therapists' responses to a questionnaire after completion of their participation suggest that the research had a negligible effect on their conduct of therapy.

The present study has several limitations. One limitation is that clinical interviews were not included in the assessment of anxiety and depression, although each distress was assessed with two instruments. Another limitation is that 18% of participants did not complete the study, possibly limiting the generalizability of the findings. However, attrition analyses indicated no significant differences between participants who completed the study and those who did not. Generalization of the results also may be limited by the volunteer sample of primarily European American university-student clients with a mean age of 21 years. However, this limitation is qualified by the findings of previous research on the association of change in self-discrepancy with change in psychological distress (Gibbons et al., 2009; Strauman et al., 2001), which used samples that, in comparison with the present sample, were more heterogeneous in demographic characteristics such as age, which had means in the late 30s or early 40s in years. The findings with those more heterogeneous samples support greater generalizability of findings of association of change in self-discrepancy with change in distress.

Another limitation of the present study is that it was not designed to test Rogers's (1959) causal theory that a decrease in self-discrepancy leads to a decrease in anxiety and depression. In the previous studies of association of change in self-discrepancy with change in distress (Gibbons et al., 2009; Strauman et al., 2001), causality also has not been addressed definitively, though Gibbons et al. (2009) found that change in discrepancy over the course of therapy predicted change in distress from termination to follow-up. The findings of associations of change in self-discrepancy with changes in anxiety and depression in the present and previous studies provide a basis for future research on causal mechanisms of therapeutic change.

The present findings support the use of the self-discrepancy instruments in future research. The three instruments each showed significant and substantial decreases in clients' RI and RO discrepancies, as well as showing that changes in both self-discrepancies were significantly and substantially associated with changes in anxiety and depression. However, the study of psychometric properties by Watson et al. (2010) found that the personal construct instrument had somewhat stronger properties than did the conventional construct instrument and that the abstract instrument had weak properties. Considering the findings of the present study together with the psychometric findings of Watson et al. (2010), these two studies provide stronger support for the personal

construct and conventional construct instruments than for the abstract instrument in future research on therapy process and outcome.

In clinical practice, the idiographic personal construct instrument is most useful. It assesses self-discrepancy in the individual's own words, which the therapist can use to increase empathic communication. The facilitation of effective therapy by therapist empathy has been found in studies of various types of therapy (Bohart, Elliott, Greenberg, & Watson, 2002).

The present findings and those of two previous studies (Gibbons et al., 2009; Strauman et al., 2001) provide evidence of associations of change in self-discrepancy with changes in anxiety and depression across different types of therapy. The findings of these studies suggest that, in diverse therapies that do not focus on self-discrepancy, clients nonetheless experience concurrent improvement in self-discrepancy and in anxiety and depression. Effective therapy for anxiety and depression may operate, at least in part, through change in self-discrepancy even if the therapist does not follow Rogers's (1959) theory of therapeutic personality change. The findings of the three studies provide a basis for future research on self-discrepancy as a change mechanism.

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