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Autonomous motivation for therapy: A new common factor in brief treatments for depression

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Abstract
The authors propose a new common treatment factor, autonomous motivation (Deci & Ryan, 2000), defined as the extent to which patients experience participation in treatment as a freely made choice emanating from themselves. Ninety-five depressed outpatients were randomly assigned to receive 16 sessions of manualized interpersonal therapy, cognitive–behavior therapy, or pharmacotherapy with clinical management. Self-report and interviewer-based measures of depressive severity were collected at pretreatment and posttreatment. Autonomous motivation, therapeutic alliance, and perceived therapist autonomy support were assessed at Session 3. Autonomous motivation was a stronger predictor of outcome than therapeutic alliance, predicting higher probability of achieving remission and lower posttreatment depression severity across all three treatments. Patients who perceived their therapists as more autonomy supportive reported higher autonomous motivation.

According to the contextual model of psychotherapy (Wampold, 2001), outcome is more powerfully determined by the common factors that are present in all forms of psychological treatment than by the specific technical procedures that are associated with each distinct school or style of treatment. Although the pervasive influence of the therapeutic alliance has been frequently noted, insufficient attention has been devoted to the modest size of the effects (Martin, Garske, & Davis, 2000), which leaves much variance in outcome unexplained. Proponents of contextual models of psychotherapy need to identify additional common factors to enhance the model's predictive power.

Self-determination theory (SDT; Deci & Ryan, 1985, 2000) appears to be an especially promising guide in the search for common factors that predict treatment outcome (Markland, Ryan, Tobin, & Rollnick, 2005; Sheldon, Joiner, Pettit, & Williams, 2003). The key concept of SDT is autonomous motivation. People are said to be autonomously motivated when they experience themselves as having freely chosen their goals and the choice is felt to emanate from themselves. In contrast, people experience controlled motivation when they feel that their choices do not emanate from themselves but rather reflect internal (e.g., guilt) or external (e.g., others' demands) pressures.

SDT postulates a continuum from controlled to autonomous regulation of behavior along which five forms of motivation are arrayed (Ryan, 1995). External motivation is the most controlled level and refers to performing an action for the sake of obtaining rewards or avoiding punishments, including the approval or disapproval of significant others. Intrinsic motivation is the most autonomous and refers to performing an action because it is interesting, exciting, or pleasurable in its own right, independent of any external reward. There are three intermediate forms of motivation that differ in their level of autonomy. Slightly more autonomous than extrinsic motivation is introjective motivation, which refers to acting to avoid feelings of guilt or self-reproach. Identified motivation refers to acting on the basis of goals that are consciously accepted as personally important and meaningful. Integrated motivation is still more autonomous and implies that the person both accepts the personal importance of a goal and has integrated that goal with his or her core values and beliefs.

SDT specifies three environmental supports that are associated with greater autonomous motivation:

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structure, autonomy support, and involvement (Deci & Ryan, 2000). Of these, the most intensively studied is autonomy support. An autonomy-supportive environment facilitates the process of internalizing environmental demands and regulations so that they come to be experienced as personally meaningful and freely chosen goals. Specific behaviors associated with autonomy support include recognizing others' unique perspectives, acknowledging their feelings, refraining from pressuring them, providing as much choice as possible within the context, and providing meaningful rationales when choice is not possible (Reeve, Bolt, & Car, 1999).

Extensive research demonstrates that autonomy-supportive environments foster autonomously motivated behavior and that autonomously motivated behavior leads to more desirable outcomes in a wide range of contexts (e.g., Ryan & Deci, 2000). In particular, autonomous motivation for engaging in treatment has been shown to lead to better outcomes with health-related problems such as diabetes (G. C. Williams, Freedman, & Deci, 1998), morbid obesity (G. C. Williams, Grow, Freedman, Ryan, & Deci, 1996), opiate addiction (Zeldman, Ryan, & Fiscella, 2004), alcohol dependence (Ryan, Plant, & O'Malley, 1995), and cigarette smoking (G. C. Williams, Gagné, Ryan, & Deci, 2001).

Several commentators have suggested that research on autonomous motivation should be extended from health-related disorders to the domain of mental disorders and their treatment (Markland et al., 2005; Sheldon et al., 2003; Vansteenkiste & Sheldon, 2006). Treatment is likely to proceed very differently with the patient who responds to the question, "What brings you to seek treatment?" by admitting that "My spouse told me I have to go into therapy" compared with the patient who responds "I have been thinking about my life and realized that I need to make changes in order to become the kind of person I want to be." The former response exemplifies highly controlled, external motivation, and the latter more autonomous, integrated motivation. However, autonomous versus controlled motivation should not be confused with the familiar distinction between voluntary and involuntary treatment. Although patients who are forced to undergo treatment are indeed highly likely to be amotivated or externally motivated, patients who voluntarily enter treatment may vary widely in the extent to which their reasons for choosing to enter therapy are experienced as controlled or autonomous.

Surprisingly little empirical research has been directed toward applying SDT in the realm of psychotherapy. In a pioneering investigation, Pelletier, Tuson, and Haddad (1997) developed the Client Motivation for Therapy Scale, which included six subscales spanning the continuum from controlled to autonomous motivation (Amotivated, External, Introjective, Identified, Integrated, and Intrinsic). Pelletier et al. then tested 138 diagnostically heterogeneous outpatients receiving a variety of forms of psychotherapy. As predicted by SDT, patients' reports that their therapists were autonomy supportive were positively correlated with autonomous motivations for being in therapy (Identified, Integrated, and Intrinsic) and negatively correlated with controlled motivations for being in therapy (External and Introjective). Autonomous forms of motivation, in turn, were positively related to reports of positive mood during sessions, satisfaction with therapy, and intention to persist in therapy. Controlled motivations were generally unrelated to patients' responses to therapy. Although Pelletier et al.'s study was an important first step, it suffered from several methodological weaknesses. The design was cross-sectional, relied exclusively on self-report, and lacked validated measures of psychopathology to serve as indexes of outcome, and the timing of measures varied unsystematically across patients.

In a 2004 study using a heterogeneous sample of psychiatric outpatients receiving CBT, Michalak, Klappheck, and Kosfelder obtained measures of patients' motivational orientations and their ratings of how beneficial they found the five treatment sessions subsequent to the assessment of motivation. The average of the ratings of the five sessions was used as a measure of sessional outcome. Michalak et al. found that patients whose general motivational orientation was more autonomous than controlled reported better sessional outcomes. Surprisingly, autonomous motivation for relief from symptoms did not predict sessional outcome. This study was limited by methodological shortcomings similar to those of Pelletier et al. (1997).

The goal of the current investigation was to conduct a methodologically rigorous examination of the links among autonomy support, autonomous motivation, and outcome in depressed outpatients receiving interpersonal therapy (IPT), cognitive–behavior therapy (CBT), or pharmacotherapy with clinical management (PHT-CM). To reduce the credibility of alternative interpretations of any relation obtained between autonomous motivation and response to treatment, we adopted some of the methodological and statistical strategies developed in the therapeutic alliance literature (e.g., Barber, Connolly, Crits-Christoph, Gladis, & Siqueland, 2000; Klein et al., 2003; Zuroff & Blatt, 2006). We assessed our predictor variables early in treatment to minimize the possible impact of early change in symptoms on the predictor variables. We also conducted subsequent change analyses in which we

examined the ability of the predictor variables to predict change in symptoms that occurred after the assessment of the predictor variables. We hypothesized that, as a common factor related to treatment outcome, autonomous motivation would predict better outcome in all three treatment conditions, even while controlling for the therapeutic alliance, and would do so both in conventional pretreatment-to-posttreatment analyses and in subsequent change analyses.

Analyses were also conducted to investigate characteristics of the therapist that might enhance the therapeutic alliance and autonomous motivation. Based on SDT, autonomy support was expected to predict autonomous motivation. SDT does not directly address the construct of therapeutic alliance, but autonomy support might also be expected to favor the emergence of patient–therapist agreement on the goals and tasks of treatment as well as the patient–therapist bond. We, therefore, predicted that autonomy support would be positively related to the therapeutic alliance as well as to autonomous motivation.

Method

The data reported here are drawn from a larger study (see McBride, Atkinson, Quilty, & Bagby, in press), the primary purpose of which was to investigate predictors of relapse in depressed outpatients who were successfully treated with CBT, IPT, or PHT-CM. Accordingly, the protocol was constructed so as to maximize the proportion of treatment responders. The investigation was conducted in an outpatient mood disorders clinic of a large university-affiliated psychiatric hospital.

Participants

The sample comprised 95 patients: 29 (30.5%) men and 66 (69.5%) women (mean age = 42.01 years, $SD = 12.$ 33). Thirty-six (37.9%) participants were single and never married; 35 (36.8%) were married; 21 (22.1%) were either divorced or separated; and 3 (3.2%) were widowed. The sample was predominantly of European descent. The mean Blishen value (a Canadian socioeconomic status index; Blishen, Carroll, & Moore, 1987) was 48.69 ($SD = 12.96$), indicating that participants in the present study were generally of middle-class socioeconomic status. Thirteen (13.7%) participants had completed high school or less; 35 (36.8%) had attended college but had not completed a bachelor's degree; 20 (21.1%) had completed a bachelor's degree; and 27 (28.4%) had some postgraduate education.

Seventeen individuals (17.9%) also met criteria for a secondary Axis I diagnosis; specifically, 11 (11.6%) met criteria for an anxiety disorder, and six (6.3%) met criteria for dysthymia. Eight patients (8.4) had a comorbid Axis II disorder. Diagnosed personality disorders included avoidant personality ($n = 5$), obsessive–compulsive personality ($n = 2$), and narcissistic personality disorder ($n = 1$).

Measures

Interviewer-rated severity of depression. The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960, 1967) is a 17-item structured interview intended to assess the degree of depressive symptomatology in patients. The HRSD has demonstrated good reliability and validity (Bagby, Ryder, Schuller, & Marshall, 2004; Nezu, Nezu, McClure, & Zwick, 2002). It is the most widely used instrument to assess depression in clinical settings and clinical trials (J. B. Williams, 2001).

Patient-reported severity of depression. The 21-item Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996) is a widely used self-report measure of the severity of depression. The BDI-II, like its predecessor the Beck Depression Inventory, shows good internal consistency and good convergence with other self-report and interviewer-based measures of depression (Nezu et al., 2002). In the present sample, the BDI-II and HRSD correlated .38 ($p < .001$) at pretreatment and .75 at posttreatment ($p < .001$).

Motivation for treatment. The Autonomous and Controlled Motivations for Treatment Questionnaire included two six-item subscales, one to assess autonomous motivation and the other to assess controlled motivation. The format of the questionnaire was adapted from G. C. Williams et al.'s (1998) Treatment Self-Regulation Questionnaire (TSRQ) for assessing motivation for managing diabetes. Patients were provided with a stem ("I participate in CBT because," "I participate in IPT because," or "I take my medication as directed because") and then were asked to rate the extent to which they agreed with each of the 12 reasons using a 7-point rating scale anchored by *strongly disagree* and *strongly agree.* Eight of the 12 items were derived from G. C. Williams et al.'s (1998) TSRQ and modified to be appropriate to the context of treatment of depression. Two new items were written for each subscale to increase the reliability of the scales by lengthening them. The autonomous motivation items represent both identified ("I personally believe that it is the most important aspect of

my becoming well") and integrated ("Managing my depression allows me to participate in other important aspects of my life") reasons for participating in treatment. The controlled motivation items represent both external ("Other people would be upset with me if I didn't") and introjective ("I would feel guilty if I didn't do what my therapist said") reasons for participating in therapy.

Initial psychometric evidence came from 125 depressed outpatients receiving treatment at an IPT clinic in the same hospital where the present study was conducted (Zuroff, Koestner, Moskowitz, McBride, & Ravitz, 2005). There was no overlap in the samples. A factor analysis with a varimax rotation resulted in two factors. All six of the controlled motivation items loaded above .61 on the first factor, which accounted for 29.6% of the variance. All six of the autonomous motivation items loaded above .58 on the second factor, which accounted for 28.8% of the variance. Cronbach's coefficient alpha was .85 for autonomous motivation and .84 for controlled motivation; the two subscales correlated modestly but significantly, $r(123) = .32$, $p < .001$.

In the present study, Cronbach's alpha was .77 for both autonomous and controlled motivation. The two subscales were significantly correlated, $r(93) = .32$, $p < .01$.

Therapeutic alliance. The strength of the therapeutic alliance was measured using the self-report versions of the California Psychotherapy Alliance Scale (CALPAS; Gaston & Marmar, 1994) in the CBT and IPT conditions and the California Pharmacotherapy Alliance Scale (CALPAS; Gaston & Marmar, 1991; Weiss, Gaston, Propst, Wisebord, & Zicherman, 1997) in the PHT-CM condition. The version of the CALPAS for pharmacotherapy is a minor revision of the psychotherapy version in which the phrase "your therapist" is replaced with "your psychiatrist" and "therapy" is replaced with "medication." Both versions include 24 items that represent the four alliance dimensions identified by Gaston (1990): patient working capacity, patient commitment, therapist understanding and involvement, and working strategy consensus. The CALPAS has been shown to have acceptable internal consistency and retest reliability and to correlate with other alliance measures (Horvath & Bedi, 2002). Cronbach's alpha for the total alliance score was .81 in the present sample.

Autonomy support. The extent to which the therapist was perceived to be autonomy supportive was assessed using a modified version of the Health Care Climate Questionnaire (HCCQ; G. C. Williams et al., 1998). G. C. Williams et al.'s (1998) measure was a shortened, five-item version of the 15-item HCCQ originally developed by G. C. Williams et al. (1996). We rewrote the items to make them appropriate for the treatment of depression and added two items to more fully represent the autonomy support construct. Sample items are as follows: "I feel that my psychiatrist has provided me choices and options" and "My psychiatrist makes sure that I understand why it is important to do the things that she or he recommends." Patients rated the items on a 7-point scale anchored by *strongly disagree* and *strongly agree.* In the present sample, factor analysis revealed a single factor with an eigenvalue greater than 1, which accounted for 59% of the variance. Cronbach's alpha for the seven-item scale was .88.

Procedure

Screening. Potential participants received an initial telephone screening interview followed by a pretreatment assessment that included structured clinical interviews for Axis I and Axis II disorders, the HRSD, and the BDI-II. The BDI-II was also administered before each treatment session. Therapeutic alliance, autonomous motivation, controlled motivation, and therapist autonomy support were assessed at the third treatment session. Patients who completed a minimum of 10 treatment sessions were scheduled for a posttreatment assessment at which the HRSD and the BDI-II were readministered. Posttreatment assessments were typically conducted within 1 week of the final treatment session.

Recruitment process, inclusion criteria, and exclusion criteria. Participants were recruited through advertisements placed in local newspapers. The study was explained to potential participants by telephone, and a telephone screening interview was scheduled for those who were interested. The telephone interview included questions addressing demographic information, general medical history, and psychiatric history. We assessed in detail current symptoms of depression and conducted partial assessments of the symptoms of several other psychiatric disorders, including anxiety disorders, eating disorders, substance abuse disorder, borderline personality disorder, and psychosis. Respondents aged 18 to 65 years who were in good general health, appeared to meet criteria for a primary diagnosis of major depression, and did not appear to suffer from psychosis, mania, substance abuse, eating disorder, or borderline personality disorder were scheduled for the pretreatment assessment.

The Structured Clinical Interview for *DSM–IV* Axis I Disorders—patient edition (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1995) was used

to assess all disorders from Axis I of the American Psychiatric Association's (2000) *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision; *DSM–IV–TR*). Patients also received the SCID-II patient questionnaire (SCID-II/PQ; First, Gibbon, Spitzer, Williams, & Benjamin, 1997). If patients endorsed the minimum criteria required for a diagnosis of a personality disorder, they were then interviewed to confirm the diagnosis using the SCID-II (First, Spitzer, Williams, & Gibbon, 1997).

Experienced research assistants conducted both the SCID-I/P and SCID-II interviews. They were required to read and be familiar with specific sections in the *DSM–IV–TR,* SCID-I/P, and SCID-II manuals; to observe at least three SCID-I/P and SCID-II interviews conducted by experienced graduate students; and then to conduct at least three additional interviews while being observed by the graduate students. If the research assistants did not perform satisfactorily, they were required to review materials and conduct additional interviews under supervision until they were deemed proficient to assess participants independently.

To be eligible to participate, individuals were required to score 10 or higher on the pretreatment HRSD and to receive a primary diagnosis of major depression using the *DSM–IV–TR.* Exclusion criteria included suicidality, seasonal affective disorder, eating disorder, substance abuse disorder, bipolar disorder, schizoaffective disorder, schizophrenia, organic brain syndrome, posttraumatic stress disorder, and borderline and antisocial personality disorder. In addition, patients were required to have no active medical illnesses and not to be taking fluoxetine for a minimum of 4 weeks and other antidepressant medications for a minimum of 2 weeks before the onset of treatment. Eligible participants who gave informed consent were then randomly assigned to one of the three treatment conditions.

Of the 863 individuals who were prescreened by means of telephone interviews, 292 were invited to the screening interview; 159 of those individuals were deemed eligible to participate. Of the 159 participants who provided informed consent and were randomized to treatment, 32 declined treatment after learning the condition to which they were assigned; thus, 127 patients began treatment. To be included in the primary analyses reported here, patients were required to have pretreatment and posttreatment data for the HRSD and the BDI-II as well as data for the measures of motivation and therapeutic alliance. These requirements reduced the sample to 95 patients. The most common reason for exclusion was missing posttreatment HRSD data.

Treatments

In the PHT-CM condition, participants were prescribed an antidepressant medication selected at the discretion of their treating psychiatrist, who monitored the patient for the duration of the protocol. The PHT-CM condition also included a clinical management component based on the manual (Fawcett, Epstein, Fiester, Elkin, & Autry, 1987) used in the Treatment of Depression Collaborative Research Program (TDCRP). The manual provided "guidelines for providing support and encouragement to the patient and giving direct advice when necessary. This CM component thus approximates a 'minimal supportive therapy' condition" (Elkin et al., 1989, p. 311). In the CBT and IPT conditions, therapy was based on the standard manual for the appropriate forms of treatment (Beck, Rush, Shaw, & Emery, 1979; Weissman, Markowitz, & Klerman, 2000). All 22 therapists were either doctoral-level or postdoctoral clinical psychology students working under the supervision of licensed psychologists, fully licensed clinical psychologists, or psychiatrists who had received training and were experienced in the administration of CBT or IPT. Therapists treated patients in only one condition.

Each treatment condition was designed to provide 16 treatment sessions. However, some patients wished to terminate their treatment sooner. If they had received at least 10 sessions, a posttreatment assessment was scheduled. Other patients were judged to have made insufficient progress after 16 sessions and were allowed to continue in treatment for up to 20 sessions. Extra sessions were permitted because the aim of the larger study was to examine predictors of treatment relapse. The percentages of patients who received 10 to 15 sessions were as follows: IPT, 13.3%; CBT, 16.7%, and PHT-CM, 0%. The percentages of patients who received 16 sessions were as follows: IPT, 46.7%; CBT, 55.6%, and PHT-CM, 100%. The percentages of patients in each condition who received 17 to 20 sessions were as follows: IPT, 40%; CBT, 27.8%; and PHT-CM, 0%.

Results

Descriptive statistics for the measures of therapeutic alliance, autonomous motivation, controlled motivation, and perceived autonomy support as well as their correlations are presented in Table I. Means and standard deviations for the BDI-II and the HRSD at pretreatment and posttreatment are pre-

Table I. Means, Standard Deviations, Cronbach Alphas, and Correlations for Measures of Therapeutic Alliance and Motivation for Treatment

Variable	1	2	3	4	*M*	*SD*	α
1. Therapeutic alliance	—				76.32	14.24	.81
2. Autonomous motivation	.28*	—			5.71	0.83	.77
3. Controlled motivation	.03	.32**	—		2.83	1.29	.77
4. Autonomy support	.44***	.40***	.10	—	6.04	0.87	.88

Note. $N = 95$ for the measures of alliance and motivation; $N = 93$ for autonomy support. The mean and standard deviation for therapeutic alliance are for the untransformed California Psychotherapy Alliance Scale (CALPAS). Correlations involving the therapeutic alliance are based on the log-transformed CALPAS.
*$p < .05$. **$p < .01$. ***$p < .001$.

sented in Table II. These values are similar to those in many studies of depressed outpatients (e.g., Elkin et al., 1989); mean pretreatment scores fell in the moderate range of depression. Following O'Donovan (2004), we defined remission as a pretreatment to posttreatment reduction of 50% or more in scores on the 17-item HRSD (Hamilton, 1960, 1967) and a posttreatment HRSD score of less than 8. The percentages of patients achieving remission so defined were as follows: IPT, 43.3%; CBT, 69.4%; and PHT-CM, 86.2%.

Preliminary analyses were conducted to determine whether treatment condition influenced the three primary predictor variables: therapeutic alliance, autonomous motivation, and controlled motivation. Analyses of variance disclosed no significant effect of treatment condition on either therapeutic alliance or controlled motivation. However, autonomous motivation did differ across the treatment conditions, $F(2, 92) = 4.27$, $p < .05$. Tukey tests revealed that autonomous motivation was significantly lower ($p < .05$) in PHT-CM ($M = 5.34$) than in either IPT ($M = 5.87$) or CBT ($M = 5.86$).

Table II. Means and Standard Deviations of Depression Measures at Pretreatment and Posttreatment

	Pretreatment		Posttreatment	
Variable/group	*M*	*SD*	*M*	*SD*
HRSD				
IPT	18.53	3.87	9.00	6.66
CBT	17.58	3.42	6.08	4.69
PHT-CM	18.62	3.61	4.17	4.76
Total sample	18.20	3.62	6.42	5.69
BDI-II				
IPT	30.50	8.88	14.20	9.54
CBT	28.81	8.06	9.67	9.72
PHT-CM	29.69	8.32	7.06	7.53
Total sample	29.61	8.34	10.30	9.40

Note. Sample sizes for the three groups were as follows: IPT, $n = 30$; CBT, $n = 36$; PHT-CM, $n = 29$. Means and standard deviations are based on raw (untransformed) scores on the HRSD and BDI-II. HRSD = 17-item Hamilton Rating Scale for Depression; BDI-II = Beck Depression Inventory II; IPT = interpersonal therapy; CBT = cognitive–behavior therapy; PHT-CM = pharmacotherapy with clinical management.

Correlations were then computed between number of treatment sessions and therapeutic alliance, autonomous motivation, and controlled motivation. Within the IPT and CBT conditions, there were no significant correlations between number of sessions and the three predictor variables. Correlations could not be computed within PHT-CM because there was no variability in number of sessions.

Treatment outcome was evaluated using both the discrete criterion of remission and the continuous criterion of posttreatment severity of depressive symptoms. Predictors of remission were tested using logistic regression; predictors of posttreatment symptom severity were tested using multiple regression. Preliminary analyses disclosed no effects for patient gender, so gender was omitted from all subsequent analyses. Both the logistic regression analysis and the multiple regression analysis began with main effects models in which the predictors were treatment condition, therapeutic alliance, autonomous motivation, and controlled motivation. Whenever alliance or motivation emerged as a significant predictor, follow-up analyses were conducted testing for interactions with treatment condition. No such interactions were found, so results are reported only for the main effects models. We also carried out exploratory tests of the interactive effect of therapeutic alliance and autonomous motivation. No evidence was found for synergistic effects of positive alliance and high autonomous motivation.

Predictors of Remission

Logistic regression analyses were conducted using PROC LOGISTIC, version 8.1 (SAS Institute Inc., 1999) and maximum likelihood estimation. Scores for the therapeutic alliance and autonomous and controlled motivation were standardized to facilitate interpretation of the odds ratios (ORs). The logistic regression revealed significant effects for treatment condition, $\chi^2(2, N = 95) = 12.17$, $p < .01$, and

autonomous motivation, $\chi^2(1, N=95)=5.12$, $p<.05$. Neither controlled motivation nor the therapeutic alliance was a significant predictor. Positive response to treatment was significantly more likely in the PHT-CM condition than in the IPT condition, $\chi^2(1, N=95)=11.57$, $p<.001$, OR = 12.63. The OR indicates that the odds of being a treatment responder were almost 13 times higher for patients receiving PHT-CM than for those receiving IPT. CBT also significantly outperformed IPT, $\chi^2(1, N=95)=4.55$, $p<.05$, OR = 3.20. There was a nearly significant trend for PHT-CM to outperform CBT, $\chi^2(1, N=95)=3.67$, $p<.06$, OR = 3.94. The odds ratio associated with autonomous motivation was 1.95, indicating that the odds of being a responder for patients with high (+1 *SD*) autonomous motivation was almost twice as great as the odds of being a responder for those at the mean level of autonomous motivation and almost four times as great as the odds for patients with low (−1 *SD*) autonomous motivation.

Predictors of Symptom Reduction

HRSD. Because of nonnormality, HRSD scores were log-transformed before the analyses. Multiple regression analysis was conducted with posttreatment HRSD scores as the dependent variable. Pretreatment HRSD, treatment condition, therapeutic alliance, autonomous motivation, and controlled motivation were entered simultaneously as predictors. Posttreatment depression was significantly predicted by the entire model, $F(6, 88)=4.06$, $p<.01$, $R^2=.22$. Treatment condition was significantly related to posttreatment symptom severity, $F(2, 88)=8.67$, $p<.001$. Tukey tests demonstrated that posttreatment depression in the PHT-CM condition was significantly lower than in IPT or CBT (ps < .05). In addition, as hypothesized, autonomous motivation for treatment predicted lower levels of depression at posttreatment, $F(1, 88)=10.84$, $p<.01$, $\beta=-.36$, $sr^2=.10$. Controlled motivation and therapeutic alliance were not significant predictors.

BDI-II. The preceding analysis was repeated using the log-transformed BDI-II in place of the HRSD. The overall model predicting posttreatment BDI-II scores was significant, $F(6, 88)=5.89$, $p<.001$, $R^2=.29$. Pretreatment BDI-II was a significant predictor, $F(1, 88)=4.53$, $p<.05$, $\beta=.19$, $sr^2=.04$, as was treatment condition, $F(2, 88)=8.15$, $p<.001$. Tukey tests demonstrated that posttreatment depression in the PHT-CM condition was significantly lower than in IPT ($p<.001$) and CBT ($p<.05$); CBT and IPT did not differ from one another. In addition, lower levels of posttreatment depression were predicted by autonomous motivation, $F(1, 88)=12.33$, $p<.001$, $\beta=-.36$, $sr^2=.10$. Therapeutic alliance and controlled motivation were not significant predictors.

Predictors of Symptom Reduction: Subsequent Change Analyses with BDI-II

Subsequent change analyses were conducted to determine whether the effect of autonomous motivation could be demonstrated in more stringently controlled analyses. These analyses used the BDI-II to measure symptom severity but differed from those reported previously in two ways. First, residual change in BDI-II scores from pretreatment to Week 3 was included as an additional predictor; this served to control any potential confounding between early symptom change and the measures of alliance and motivation at Week 3. Second, the baseline measure of symptom severity was not pretreatment but severity at Week 4 or 5 (i.e., subsequent to the assessment of alliance and motivation). This procedure served to establish the temporal precedence of the alliance and motivation measures to the measure of symptom change. We accepted either Week 4 or Week 5 as the baseline to mitigate the loss of data from patients who had BDI-II data at Week 3 but not at Week 4.

The sample size in these analyses was reduced from 95 to 75 because of missing BDI-II data. Within this reduced sample, the correlations of early change in BDI-II (from pretreatment to Week 3) with therapeutic alliance, autonomous motivation, and controlled motivation were all nonsignificant and less than .10 in absolute magnitude.

A multiple regression analysis was conducted with the BDI-II at posttreatment as the dependent variable and the following variables entered simultaneously as predictors: baseline BDI-II, treatment condition, early change in BDI-II, therapeutic alliance, autonomous motivation, and controlled motivation. The overall model was significant, $F(7, 67)=7.91$, $p<.001$, $R^2=.45$. Baseline BDI-II was a significant predictor, $F(1, 67)=12.60$, $p<.001$, $\beta=.47$, $sr^2=.10$. Crucially, autonomous motivation remained a significant predictor of lower posttreatment severity of depression, $F(1, 67)=13.53$, $p<.001$, $\beta=-.40$, $sr^2=.11$. In addition, therapeutic alliance emerged as a significant predictor of lower posttreatment severity of depression, $F(1, 67)=4.01$, $p<.05$, $\beta=-.19$, $sr^2=.03$. The effect of controlled motivation was not significant.

Predictors of Treatment Outcome: Expanded Sample With BDI-II

Missing posttreatment data were less common for the BDI-II than for the HRSD. Consequently, it was possible to conduct analyses on an expanded sample by including patients who were missing only HRSD data. Using the BDI-II as the sole outcome measure resulted in a sample of 109 for the pretreatment-to-posttreatment analyses and a sample of 89 for the subsequent change analyses. To save space, only the key findings pertaining to therapeutic alliance and motivation are reported.

A multiple regression analysis using the expanded sample confirmed that autonomous motivation predicted lower levels of depressive symptoms at posttreatment, $F(1, 102) = 9.60$, $p < .01$, $\beta = -.31$, $sr^2 = .07$. The subsequent change analysis with the expanded sample also confirmed that autonomous motivation predicted lower levels of depressive symptoms at posttreatment, $F(1, 81) = 7.94$, $p < .01$, $\beta = -.29$, $sr^2 = .06$.

Autonomy Support as a Predictor of Therapeutic Alliance and Motivation

As predicted, there were significant correlations between autonomy support and the therapeutic alliance and autonomous motivation (see Table I). Autonomy support was unrelated to controlled motivation. To determine whether the relations of autonomy support to the therapeutic alliance and autonomous motivation were moderated by treatment condition, multiple regression analyses were conducted, including treatment condition and Treatment Condition × Autonomy support as predictors. No significant interactions with treatment condition were obtained.

Discussion

As predicted by SDT, autonomous motivation emerged as a powerful common factor in the treatment of depression, predicting outcome over and above the therapeutic alliance. Moreover, despite the manualized nature of the treatments, differences in the perceived autonomy supportiveness of therapists emerged as a significant predictor of autonomous motivation.

Predictors of Outcome

Patients who were more autonomously motivated for treatment experienced better outcomes using both remission and symptom reduction as criteria. Furthermore, the positive effect of autonomous motivation did not differ significantly across the IPT, CBT, and PHT-CM conditions. The robust nature of the findings was demonstrated in two sets of supplementary analyses. Specifically, autonomous motivation continued to be a significant predictor in analyses that controlled early symptom change and that examined change subsequent to the assessment of autonomous motivation. The results were also unchanged when we relaxed inclusion criteria and used a nearly complete sample of those who started treatment.

The magnitude of the autonomous motivation effect is worth noting. In all of our analyses, it was a more powerful predictor of outcome than the therapeutic alliance. The standardized regression coefficients obtained in the analyses of symptom severity ranged from .31 (extended sample) to .40 (subsequent change). These values are well above the effect size correlations in the low to mid .20s that have been obtained in meta-analyses of therapeutic alliance studies (Beutler et al., 2004; Horvath & Bedi, 2002; Horvath & Symonds, 1991; Martin et al., 2000).

The hybrid nature of the PHT-CM condition, involving both pharmacotherapy and the supportive elements of psychotherapy, introduces an important ambiguity into our conclusions. We cannot determine whether autonomous motivation enhanced the efficacy of one or the other or both of the components of PHT-CM. It is possible that autonomous motivation only affected the CM component and that our conclusions should, therefore, be restricted to purely psychological treatments. We believe that this is unlikely because prior studies have demonstrated the impact of autonomous motivation on adherence to medical treatments for a variety of physical disorders (G. C. Williams et al., 1998). Nevertheless, the precise role of autonomous motivation in purely pharmacological treatments for depression must be determined in future studies.

Another important question concerns mechanisms: Through what processes or mechanisms does autonomous motivation lead to better outcomes? Studies of autonomous motivation in nontherapy contexts suggest that patients may adhere more closely to the prescribed treatment; may carry out therapeutic procedures more carefully, persistently, and effectively; and may persevere in treatment even when it becomes difficult or discouraging (Markland et al., 2005). In addition, autonomously motivated patients may more fully internalize what they have learned in therapy. For example, an autonomously motivated patient may be better able to transform the observation "My therapist thinks that I need to become less perfectionistic" into the more internalized belief "I understand how my perfectionism

leads to unhappiness and I recognize that I need to become more forgiving of my errors."

Although autonomous motivation and controlled motivation lie on opposite ends of a conceptual continuum, the results obtained for controlled motivation were not simply the opposites of those obtained for autonomous motivation. In fact, autonomous motivation and controlled motivation were significantly positively correlated; patients can have complex motivations for treatment that include a blend of autonomous and controlled elements. Also noteworthy is the fact that the significant positive effects of autonomous motivation were not mirrored by significant negative effects of controlled motivation. Thus, it may be more important for clinicians to try to foster autonomous motivation than to try to reduce controlled motivation. This conclusion leads to the question of what factors in the therapist's behavior enhance autonomous motivation.

Predictors of Therapeutic Alliance, Autonomous Motivation, and Controlled Motivation

We predicted that therapists who were perceived to be autonomy supportive would have patients who were higher in autonomous motivation. In addition, we expected that autonomy support would be associated with a stronger therapeutic alliance. Both predictions were confirmed, and the size of the autonomy support effects was found not to differ across the IPT, CBT, and PHT-CM conditions. Because autonomy support and autonomous motivation were measured concurrently, causal interpretations are risky. Nevertheless, the findings are consistent with the SDT emphasis on the importance of providing treatment for depressed patients in an autonomy-supportive fashion.

The findings also illustrate the general point that the manualization of treatments does not eliminate important differences in how therapists are perceived by their patients (Beutler et al., 2004). We believe it is likely that these differences reflect characteristics of the patients themselves, characteristics of the therapists themselves, and more importantly the interaction of patient and therapist characteristics. These influences could not be untangled in the present data set, but doing so should be a priority for future research.

Other Findings

Two unexpected aspects of our results merit comment. First, therapeutic alliance was not a significant predictor of outcome in our analyses, with the exception of the subsequent change analysis using the BDI-II. Given the small effect size associated with therapeutic alliance (e.g., Martin et al., 2000), it can be expected that in some studies the effect will not achieve statistical significance. Effect sizes for the CALPAS also appear to be somewhat smaller than for other alliance measures, with an average effect size correlation of .17 (Martin et al., 2000). Larger, statistically significant effects of the therapeutic alliance might have been obtained with a different measure.

Second, the clear superiority of the PHT-CM condition to IPT and, to a lesser extent, CBT was surprising. In the landmark TDCRP study, the imipramine with clinical management condition (IMI-CM) produced more rapid treatment response than CBT or IPT, but at termination there were no significant differences in the completer sample among the IMI-CM, CBT, and IPT conditions (Elkin, 1994; Elkin et al., 1989). Comparing treatment efficacy in the present study with that in the TDCRP suggests that our IPT condition performed more poorly than would have been expected and that our PHT-CM condition may have performed somewhat better than IMI-CM. Psychiatrists in the PHT-CM condition had a wider choice of drugs, including more modern drugs, and were allowed to follow a more flexible dosing schedule. It is possible that this allowed them to achieve better results. We have no explanation for the relatively poor showing of IPT in this study.

Methodological Problems and Limitations

Although the present study was methodologically superior to previous studies of autonomous motivation and psychotherapy outcome, it was not without its own problems and limitations. Two methodological flaws were the variable number of sessions allowed to patients, which increased variability within conditions, and the confounding of number of sessions with treatment condition. Both were consequences of the effort to maximize the number of treatment responders for the study's primary goal: the prediction of relapse. Fortunately, the principal findings do not appear to have been affected by these problems. Our analyses controlled for treatment condition, and there were no significant correlations within the treatment conditions between number of treatment sessions and any of the predictor variables.

Another limitation was the loss of patients to early termination, which decreased the size of the completer sample compared with the total number of patients who began treatment. This problem was partially mitigated by the analysis using the expanded sample, which replicated the principal findings obtained with the completer sample.

It is also important to acknowledge that the absence of statistically significant differences across treatment conditions cannot be interpreted as proof that the effects of autonomous motivation are the same across conditions. A study with greater statistical power might have found moderating effects of treatment condition.

The generalizability of our findings is constrained in several important ways. Only depressed patients were treated, and only three forms of treatment were compared. Furthermore, the study was a randomized clinical trial conducted in a large psychiatric center with a somewhat homogenous patient population. The patients who were recruited, randomized, and retained may not have been representative of those found in general clinical practice. In particular, the sample may have been biased toward high levels of autonomous motivation because all potential patients were required to initiate contact with the project and because the patients who were randomized to a given treatment were able to decline that treatment. Such sampling biases could have restricted the range of autonomous motivation and thereby deflated the observed effect sizes. As well, the treatments were time limited and manualized and may not have reflected treatment as it occurs in the community. There is clearly a need to determine whether the present results would be obtained with other treatments for depression, with other disorders than depression, and in naturalistic treatment settings.

Future Directions

Particularly important topics for future research are establishing the generalizability of the effects reported here, investigating the mechanisms that may underlie the positive impact of autonomous motivation, and determining the relations between autonomous motivation and other patient and relational factors that are related to psychotherapy outcome (Norcross, 2002). More detailed understanding of the therapist attitudes and behaviors that promote autonomous motivation is also needed, and useful guidance may be found in the motivational interviewing literature (Vansteenkiste & Sheldon, 2006). Despite our enthusiasm for autonomous motivation, we also offer the caution that even the combination of the therapeutic alliance and autonomous motivation left a great deal of unexplained variance in treatment outcome. The contextual model (Wampold, 2001) will not be fully articulated until more common factors are identified and operationalized.

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