THERAPIST'S AUTONOMY SUPPORT AND PATIENT'S SELF-CRITICISM PREDICT MOTIVATION DURING BRIEF TREATMENTS FOR DEPRESSION

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Zuroff et al. (2007) showed that autonomous motivation, defined as the extent to which patients experience participation in treatment as a personally meaningful choice, predicted outcome in a study of 95 depressed outpatients who were randomly assigned to one of three 16-week manualized treatments. Further analyses were undertaken to test hypotheses derived from Self-Determination Theory (SDT; Ryan & Deci, 2008a, 2008b). Autonomous motivation, controlled motivation, perceived therapist autonomy support, and depressive severity were assessed at Sessions 3, 8, 13, and posttreatment. Autonomous and controlled motivation displayed both trait and contextual influences and were only moderately correlated with one another. Multilevel modeling was used to separate the predictive influ-

ences of within-person and between-person differences. Better treatment response (i.e., lower depressive severity) was predicted positively by between-person and within-person differences in autonomous motivation and inversely by between-person differences in controlled motivation. Higher perceived autonomy support from the therapist predicted higher autonomous motivation both between-person and within-person. Controlled motivation was unrelated to autonomy support, but instead was predicted by trait Self-Criticism. The results did not differ across treatment conditions, supporting the suggestion that SDT can be used to identify novel common factors in psychotherapy.

Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2008a, 2008b; Ryan, Lynch, Vansteenkiste, & Deci, 2011) is an empirically-supported theory of human motivation, which has been fruitfully applied to analyzing a multiplicity of educational, medical, and organizational interventions. Surprisingly, its application to process and outcome in psychotherapy has been little explored (Markland, Ryan, Tobin, & Rollnick, 2005; Sheldon, Joiner, Petit, & Williams, 2003; Vansteenkiste & Sheldon, 2006). The focus of the present article is on the role of three SDT constructs in the treatment of depression: *autonomous motivation*, *controlled motivation*, and *autonomy support*.

Autonomous motivation is present when people experience their goals as freely chosen and personally meaningful. Controlled motivation is present when people feel that their goals result from internal (e.g., guilt) or external (e.g., situational demands) pressures. Autonomous and controlled motivation are frequently conceptualized as opposite ends of a continuum, leading researchers to construct a *motivational index* by subtracting measures of the two forms of motivation. However, recent evidence suggests it is preferable to treat them as separate, independent constructs, because they are generally not strongly negatively correlated with one another and have different rather than opposite correlations with other variables (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). Higher levels of autonomous motivation are associated with better performance and outcomes in a wide range of contexts (Ryan & Deci, 2008b).

According to SDT, people's levels of autonomous motivation depend on the extent to which others in their social environments behave in a fashion that provides autonomy support. Behaviors associated with autonomy support include recognizing the individual's unique perspective, acknowledging their feelings, avoiding pres-

suring tactics, providing choice to the greatest extent possible, and providing a meaningful rationale when choice is not possible (Deci, Eghrari, Patrick, & Leone, 1994; Reeve & Jang, 2006). When people experience autonomy support from important others (e.g., parents, friends, teachers, supervisors, and therapists), they are better able to internalize environmental expectations and regulations so that those regulations come to be experienced as personally meaningful and freely chosen goals (Ryan & Deci, 2008b).

Only a handful of studies have examined the roles of SDT variables in psychotherapy. Pelletier, Tuson, and Haddad (1997) found that in a heterogeneous sample of outpatients, patients' reports of the extent to which their therapists were autonomy supportive were positively associated with autonomous motivation and negatively associated with controlled motivation. Autonomous motivation was associated with reports of positive mood during sessions, satisfaction with therapy, and intentions to persist in therapy; controlled motivation was generally unrelated to patients' responses to treatment. Michalak, Klappheck, and Kosfelder (2004) studied a heterogeneous sample of outpatients receiving cognitive behavior therapy and found that patients whose general motivational orientation was more autonomous than controlled reported better sessional outcomes, but, surprisingly, their autonomous motivation for achieving relief from symptoms did not predict outcome. Although both studies produced results generally supportive of the hypothesized importance of autonomous motivation, they suffered from methodological weaknesses, including heterogeneous patient populations, exclusive reliance on self-report measures, and nonprospective designs.

Zuroff et al. (2007) attempted to extend Pelletier et al.'s (1997) and Michalak et al.'s (2004) pioneering investigations in a rigorously designed randomized controlled trial. Carefully diagnosed depressed outpatients were randomly assigned to receive 16 sessions of manualized Interpersonal Therapy (IPT), Cognitive Behavioral Therapy (CBT), or pharmacotherapy with clinical management (PHT-CM). Self-report and interviewer-based measures of depression were collected at pretreatment and posttreatment, and measures of autonomous motivation, controlled motivation, and autonomy support were available from Session 3. The measures of autonomous and controlled motivation referred specifically to the patient's reasons for participating in treatment for depression. Autonomous motivation measured at Session 3 predicted change in depressive severity

subsequent to Session 3, as well as the probability of achieving remission. Controlled motivation was not significantly related to outcome. As predicted by SDT, perceived autonomy support at Session 3 was associated with patients' levels of autonomous motivation at Session 3. All of these results held equally across the three treatment conditions, leading Zuroff et al. to suggest that autonomous motivation might be an important new common factor in treatment.

In an uncontrolled, naturalistic study of 74 depressed outpatients receiving manualized IPT, McBride et al. (2010) attempted to replicate some of Zuroff et al.'s findings, as well as to examine the possible moderating role of highly recurrent (3 or more episodes) and less recurrent histories of depression. In the total sample, higher autonomous motivation again predicted greater probability of remission; the effect was stronger among the less recurrent patients. Some evidence was also found suggesting that controlled motivation predicted poorer outcomes.

Taken together, the two studies of depressed outpatients supported key predictions derived from SDT. Autonomous motivation for treatment, measured early in treatment, predicted outcome assessed in several ways, and higher levels of autonomous motivation were predicted by perceived autonomy support from therapists.

As reasonably strong evidence has been presented for the relation of autonomous motivation to *outcome*, the present article primarily addressed issues of *process*. Specifically, we were concerned with interpersonal and personality factors that might be associated with higher or lower levels of autonomous and controlled motivation. Clinical experience indicates that patients' attitudes and motivations can vary substantially over the course of treatment. Similarly, SDT does not view autonomous motivation as a fixed personality trait, but instead regards autonomous and controlled motivation as sensitive to the social environment (Ryan & Deci, 2008b). These considerations suggest that patients' levels of autonomous and controlled motivation for treatment are not likely to be constant from the beginning to the end of therapy, but instead might show substantial fluctuations as perceptions of the therapist changed, either in response to actual changes in the therapist's behavior or perhaps to changes in transference-based reactions to the therapist. On the other hand, SDT does not regard motivation as entirely dependent on context, but rather proposes that there is some degree of consistency such that one can meaningfully speak of general, or dispositional, motivational orientations. This formulation is consistent

with the broader trend within personality and social psychology (e.g., Moskowitz, 2009) to recognize both consistency and variability in personality-related characteristics. These considerations suggest that there might be important individual differences between patients in the levels of autonomous and controlled motivation they experience over the course of treatment.

Thus, our goals were to explore both contextual and personality factors that influence patients' motivations as they progress through treatment. Based on prior research, we focussed on autonomy support as a contextual predictor of motivation and the personality variable of self-criticism as a predictor of individual differences in overall levels of motivation for treatment. We anticipated that the results might be useful to therapists by suggesting means of maintaining high levels of autonomous motivation or addressing decreases in autonomous motivation, as well as identifying patients who are likely to experience persistent motivational problems. Although we were primarily interested in predicting motivation over the course of treatment, we also conducted analyses examining whether levels of motivation throughout treatment were linked to severity of depression throughout treatment. These outcome-focused analyses supplement those previously reported by Zuroff et al. (2007), who examined levels of motivation at only one point in time, early in treatment.

The self-criticism construct is anchored in Blatt's (2004, 2008) theory of personality development and psychopathology. Individuals high in self-criticism "engage in constant and harsh self-scrutiny and evaluation and have a chronic fear of being disapproved and criticized" (Blatt & Zuroff, 1992, p. 528). Self-criticism is associated with a wide variety of negative outcomes, including vulnerability to depression (Blatt, 2004; Zuroff, Mongrain, & Santor, 2004) and impaired social relationships (Zuroff, Santor, & Mongrain, 2005). High levels of dispositional self-criticism also interfere with the treatment of depression (Blatt & Zuroff, 2005; Rector, Bagby, Segal, Joffe, & Levitt, 2000).

According to Blatt (2004; Blatt & Homann, 1992), self-criticism develops in response to harsh, punitive parenting as the child struggles to obtain approval from the parents and eventually introjects their demanding standards and critical attitudes. Shahar, Henrich, Blatt, Ryan, and Little (2003) and Luyten and Blatt (2010) have pointed out the close connection between the constructs of self-criticism and controlled motivation. Self-critics frequently try

to please other people to ward off anticipated criticisms from them; they also frequently strive to please introjected parental representations to ward off anticipated internal attacks. Struggling to deal with external and internal pressures are the two fundamental forms of controlled motivation (Ryan, 1995). Consistent with this reasoning, several studies have found that self-criticism is correlated with higher levels of controlled motivation for personal goals (Powers, Koestner, Lacaille, Kwan, & Zuroff, 2009; Powers, Koestner, & Zuroff, 2007; Shahar et al., 2003; Shahar, Kanitzki, Shulman, & Blatt, 2006). Self-criticism was unrelated to autonomous motivation in these studies. We planned to examine whether self-criticism was related to autonomous or controlled motivation in the context of treatment for depression.

Analyses were conducted using the sample of depressed outpatients who had previously been studied by Zuroff et al. (2007). Zuroff et al. examined only the concurrent relations at Session 3 among autonomy support and the two motivational measures, but the present analyses employed additional measures of the SDT constructs from Session 8, Session 13, and posttreatment. Because four time points were available, it was possible to use multilevel modeling to examine separately the person-level predictors of between-person differences in levels of motivation across therapy and contextual predictors of within-person fluctuations at each assessment point. Predictors of between-person differences are referred to as level-2 predictors; predictors of within-person fluctuations are referred to as level-1 predictors.

Four sets of hypotheses were examined. First, we expected all three SDT variables to be moderately stable over time; stated differently, we expected to observe both a degree of trait-like consistency over the course of therapy and a degree of fluctuation from session to session. Intraclass correlations (ICCs) were computed to assess the proportion of between-persons (trait) variance to total variance for each variable of interest. Like other molar theories of human behavior, SDT is not sufficiently precise to permit the derivation of point predictions for ICCs. However, Fournier, Moskowitz, and Zuroff (2007) examined four personality characteristics (dominance, submissiveness, quarrelsomeness, and agreeableness) that would also be expected to reflect both person and contextual influences. ICCs for all four variables were close to .50, indicating approximately equal amounts of person variance and contextual

variance. We therefore expected to observe ICCs for the SDT variables in a moderate range from .3 to .7.

Second, we examined both between-person and within-person correlations of autonomous and controlled motivation. High negative correlations would support the utility of the motivational index formed by subtracting the two forms of motivation. Koestner et al.'s (2008) meta-analysis found that between-person correlations of autonomous and controlled motivation ranged in goal-setting studies from -.18 to +.26, and overall were not significantly different from zero. Prior studies in psychotherapy found between-person correlations of .04 (Mansour et al., 2012), .25 (McBride et al., 2010), and .32 (Zuroff et al., 2007, Session 3). Thus, we expected to find small-to-moderate correlations, which would demonstrate the importance of measuring the two constructs separately rather than combining them into a single motivational index. Following Cohen's (1988) conventions, we interpreted small to mean correlations ranging from .1 to .3, and moderate to mean correlations ranging from .3 to .5.

Third, we expected that autonomous motivation would be associated with depressive severity across the treatment period. Specifically, between-person differences in autonomous motivation were expected to predict the rate of change in depressive severity, and within-person differences in autonomous motivation were expected to predict sessional levels of depressive severity. We planned to test the effects of controlled motivation as well, but no hypotheses were stated.

Fourth, we predicted that autonomy support would predict autonomous motivation at both level-1 and level-2; in other words, between-person differences in autonomy support would predict between-person differences in autonomous motivation, and sessional fluctuations in autonomy support would predict fluctuations in patients' sessional levels of autonomous motivation. In addition, we expected that self-criticism would be positively related to between-person differences in controlled motivation.

METHOD

The data reported here are drawn from a larger study (McBride, Atkinson, Quilty, & Bagby, 2006), whose primary purpose was to

investigate predictors of relapse in depressed outpatients who were first successfully treated with CBT, IPT, or PHT-CM. Accordingly, the protocol was constructed to maximize the proportion of treatment responders. The investigation was conducted in an outpatient mood disorders clinic of a large university-affiliated psychiatric hospital. Other articles derived from this study are Bulmash, Harkness, Bagby, and Stewart (2009); Marshall, Zuroff, McBride, and Bagby (2008); Quilty, McBride, and Bagby (2008); and Zuroff et al. (2007).

PARTICIPANTS

The present analyses were based on the same sample as Zuroff et al. (2007). There were 95 patients, with a mean age of 42.01 years (SD = 12. 33). Sixty-six (69.5%) were female. Thirty-six (37.9%) of the sample 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. Mean pretreatment scores on the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) and the Hamilton Rating Scale for Depression (Hamilton, 1960, 1967) were, respectively, 29.6 (SD = 8.34) and 18.2 (SD = 3.62). The mean number of prior episodes of depression was 2.26 (SD = 1.73; median = 2.0), and 37 of the patients had experienced three or more prior episodes, thereby meeting McBride et al.'s (2010) criterion for highly recurrent depression. The mean length of the present episode was 68.6 weeks (SD = 97.6; median = 29.0). Seventeen individuals (17.9%) in the sample also met criteria for a secondary Axis-I diagnosis and eight (8.4%) had a co-morbid Axis-II disorder. Additional demographic and clinical information is available in Zuroff et al. (2007).

MEASURES

Motivation for Treatment. The Autonomous and Controlled Motivations for Treatment Questionnaire (ACMTQ) included two 6-item subscales, one to assess autonomous motivation and one to assess controlled motivation. The format of the questionnaire was adapted from Williams, Freedman, and Deci'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 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. In the present study, Cronbach's alpha was .77 for both autonomous and controlled motivation at Session 3. Autonomous motivation for treatment has predicted outcome in two studies of depression (McBride et al., 2010; Zuroff et al., 2007) and a study of bulimia (Mansour et al., 2012).

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; Williams et al., 1998). Williams et al.'s (1998) measure was a shortened, 5-item version of the 15-item HCCQ originally developed by Williams, Grow, Freedman, Ryan, and Deci (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: "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. Cronbach's alpha for the 7-item scale was .88 at Session 3.

Self-Criticism. The Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976) includes 66 items, each rated on a 7-point Likert scale. As recommended by Zuroff, Quinlan, and Blatt (1990), Self-Criticism scores were computed using the factor scoring coefficients from the female standardization sample (Blatt et al., 1976). The factor structure of the DEQ is replicable (Zuroff et al.,

1990), and the scales display adequate internal consistency (Blatt et al., 1976) and retest reliability (Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983). The DEQ has been used extensively to measure personality differences in vulnerability to depression (for reviews, see: Blatt, 2004; Blatt & Zuroff, 1992; Zuroff et al., 2004).

Patient-Reported Severity of Depression. The 21-item Beck Depression Inventory-II (BDI-II; Beck et al., 1996) is a widely used self-report measure of the severity of depression. The BDI-II shows good internal consistency and good convergence with other self-report and interviewer-based measures of depression (Nezu, Nezu, McClure, & Zwick, 2002). In the present sample, Cronbach's alpha was .92 at Session 3. Zuroff et al. (2007) found that BDI-II scores were skewed, and consequently they reported results based on log-transformed scores. To maintain consistency with the prior analyses, we also used log-transformed scores.

PROCEDURE

The procedure has been described in detail in prior publications (e.g., McBride et al., 2006). Briefly, 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 Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960, 1967), and the BDI-II. The BDI-II was also administered prior to each treatment session. Autonomous motivation, controlled motivation, and perceived therapist autonomy support were assessed at the third, eighth, and thirteenth treatment sessions, and posttreatment. Posttreatment assessments were typically conducted within one 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. Respondents aged 18–65 who were in good general health, who appeared to meet criteria for a primary diagnosis of major depression, and who 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 *Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000). Patients also received the *Structured Clinical Interview for DSM-IV, Axis II patient questionnaire* (SCID-II/PQ; First et al., 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 *Structured Clinical Interview for DSM-IV, Axis II* (SCID-II; First et al., 1997).

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 (American Psychiatric Association, 2000). 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. Eligible participants who gave informed consent were then randomly assigned to one of the three treatment conditions.

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. Zuroff et al.'s (2007) sample was further restricted to patients who provided pretreatment and posttreatment data for the HRSD and the BDI-II, as well as data for the Session 3 measures of motivation and therapeutic alliance.

TREATMENTS

In the PHT-CM condition, participants were prescribed an antidepressant medication selected at the discretion of their treating psychiatrist who followed 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). 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, Markow-

itz, & Klerman, 2000). All 22 therapists were either doctoral-level or post-doctoral clinical psychology students who worked under the supervision of licensed psychologists or psychiatrists who were trained and experienced in the administration of CBT or IPT. Therapists treated patients in only one condition. The number of patients treated by each therapist was highly variable, with most therapists treating three or fewer patients, but several treating 10 or more.

Each treatment condition was designed to provide 16 treatment sessions. However, some patients terminated 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 up to 20 sessions. Extra sessions were permitted because the aim of the larger study was to examine predictors of treatment relapse. Although there was some variability across participants in the timing of posttreatment assessments, for data analytic purposes all posttreatment measures were ascribed to the 16th week.

RESULTS

The results are presented in four sections. The first section reports ICCs that index the degree of stability in the motivation variables, as well as between-person and within-person correlations that address the distinctiveness of the two forms of motivation. We also report time-related changes in the SDT variables over the course of treatment. The second section reports multilevel modeling of depressive severity predicted from autonomous and controlled motivation. The third section addresses the process issues that were our primary focus. We report multilevel models that examine autonomy support and Self-Criticism as predictors of the motivation variables. The fourth section presents a series of supplementary analyses, including tests of alternative interpretations of the results.

DATA ANALYSES

Our principal data analytic strategy was multilevel modeling, carried out using PROC MIXED, version 9.2 (SAS Institute, 2008), with maximum likelihood estimation and Kenward-Rogers degrees of freedom. The conventional approach to separating between-person

and within-person influences is to use person-level means to assess between-person differences in predictor variables, and centered scores from which the person-level means have been subtracted to assess within-person differences (Kreft & De Leeuw, 1998). Curran and Bauer (2011) recently argued that this procedure risks producing distorted parameter estimates when a time-varying covariate is itself characterized by a fixed effect of time; this was the case for our principal time-varying covariate, autonomy support. We therefore adopted the alternative procedure outlined by Curran and Bower (2011).

Following Curran and Bower's (2011) recommendations, there were three steps to the analyses. First, time was rescaled to grand-mean centered time. We treated time as a continuous linear variable with values corresponding to weeks 3, 8, 13, and 16 (posttreatment) and then rescaled it by subtracting the grand mean of 9.55 weeks. Second, ordinary least squares regressions were computed for each participant, predicting autonomy support from time. Intercepts from these regressions were saved and grand-mean centered to assess between-person differences in autonomy support. Time-specific residuals were saved to assess within-person differences in autonomy support. Third, these intercepts and residuals were used as the level-2 and level-1 predictors in the multilevel models. Because of the grand-mean centering of time, the between-person scores can be interpreted as the predicted level of autonomy support for each person at 9.55 weeks. Because the effect of time on autonomy support was removed by using residual scores, the within-person scores are described as *detrended*.

Models were developed using a sequential strategy (Wallace & Green, 2002), beginning by evaluating the fixed effects part of the model while assuming a structure for random error that is frequently suitable in treatment studies, autoregressive with heterogeneous error variances (ARH[1]). After the fixed effects were tested, we explored alternative error covariance structures, including allowing the ARH[1] parameters to vary over treatment group. None of the alternatives improved fit according to the AIC and BIC criteria, so the ARH[1] structure was retained in all analyses.

Preliminary analyses disclosed no main effects of sex on the three SDT variables; consequently, sex was omitted from the analyses reported below. As well, the cross-level interactions for autonomy support (i.e., level-1 autonomy support × level-2 autonomy sup-

TABLE 1. Means, Standard Deviations, and Sample Sizes for Autonomous Motivation, Controlled Motivation, and Autonomy Support

Time	Autonomous Motivation			Controlled Motivation			Autonomy Support		
	M	SD	N	M	SD	N	M	SD	N
Session 3	5.71	.83	95	2.83	1.29	95	6.04	.87	93
Session 8	5.77	1.01	91	2.81	1.42	92	6.35	.65	92
Session 13	5.94	.92	81	2.72	1.31	79	6.49	.53	84
Posttreatment	5.87	1.17	75	2.81	1.42	76	6.56	.52	77

port) were not significant, so they were omitted from the reported analyses.

INTRACLASS CORRELATIONS, BETWEEN- AND WITHIN-PERSON CORRELATIONS, AND CHANGES OVER TIME

Means, standard deviations, and sample sizes at each of the four time points are presented in Table 1. We first examined how much of the total variability in the SDT variables could be attributed to between-person differences and how much to within-person fluctuations from session to session. The total variability in a measure can be partitioned into between and within-person proportions by estimating a multilevel model in which the only predictor is a random intercept (Kreft & de Leeuw, 1998; Snijders & Bosker, 1999). The ICC is the ratio of the between-person variance (i.e., the variance explained by the random intercept) to the total variance and is interpreted as a measure of temporal stability. All three variables were relatively stable over time, with more than half of the variance in each attributable to between-person differences (ICCs of .62, .74, and .60 for autonomous motivation, controlled motivation, and autonomy support, respectively). On the other hand, there was clearly within-person variance, suggesting that patients' levels of autonomous and controlled motivation and the support they perceived from their therapists waxed and waned over the course of treatment. However, it should be noted that the observed within-person variance includes both reliable change and measurement error; therefore 1—ICC overestimates the amount of reliable within-person variance. The ICCs for autonomous motivation and autonomy support fell within the expected range (.30–.70), while the ICC for controlled motivation was slightly higher.

TABLE 2. Between-Person and Mean Within-Person Correlations

Variable	1	2	3
1. Autonomous motivation	—	.32[a]	.30[b]
2. Controlled motivation	.06[c]	—	-.06[b]
3. Autonomy support	.36[d]	-.11[e]	—

Note. Between-person correlations appear above the diagonal; mean within-person correlations appear below the diagonal.
[a]$n = 95$; [b]$n = 93$; [c]$n = 80$; [d]$n = 73$; [e]$n = 74$

Between-person and within-person correlations between the SDT variables are presented in Table 2. It can be seen that, between-person, patients who reported higher average levels of autonomous motivation over the course of treatment also reported higher average levels of controlled motivation and, as expected, higher average levels of autonomy support. There was no relation between autonomy support and controlled motivation. The size of the between-person correlation of autonomous and controlled motivation (.32) was consistent with our expectation of no more than a moderate relation.

The within-person correlations were computed by first correlating pairs of variables (e.g., autonomy support and autonomous motivation) over the four time points for each patient, and then taking the mean over the sample of patients of those within-person correlations. The average within-person correlation between autonomous and controlled motivation was close to zero (.06), indicating that increases in one form of motivation were not systematically associated with increases or decreases in the other. As expected, patients reported higher levels of autonomous motivation at points in therapy when they experienced higher levels of autonomy support. The within-person relation between autonomy support and controlled motivation was negative, but small in size.

The effect of time on autonomous motivation, controlled motivation, and autonomy support was examined in separate multilevel analyses. Time was grand-mean centered. The fixed effect predictors were treatment condition, time, and Condition × Time. The interaction of treatment condition and time was nonsignificant in each case and was therefore dropped from the models. As suggested by the observed means reported in Table 1, autonomous motivation increased over the course of treatment, $B = .018$, $SE = .008$, $t (106) = 2.25$, $p < .05$. Controlled motivation, in contrast, did not change

significantly over time, $B = .00$, *ns*. A significant effect of treatment condition on controlled motivation was obtained, $F (2, 94) = 5.34$, $p < .01$, but there was no effect of condition on autonomous motivation. A post hoc comparison revealed that controlled motivation was higher in the two psychotherapy groups than in the PHT-CM group, $t (94) = 2.31$, $p < .05$. Perceived autonomy support increased over the course of treatment, $B = .031$, $SE = .007$, $t (87) = 4.53$, $p < .001$, but was not significantly related to condition. The presence of significant fixed effects for time demonstrated the importance of following Curran and Bauer's (2011) recommendations in our subsequent analyses using the SDT variables as time-varying covariates.

PREDICTION OF DEPRESSIVE SEVERITY BY AUTONOMOUS AND CONTROLLED MOTIVATION

The dependent variable in this multilevel analysis was log-transformed BDI-II scores at Sessions 3, 8, 13, and posttreatment. The fixed effects in the model included the level-1 variables: grand-mean centered time, within-person autonomous motivation, and within-person controlled motivation. The level-2 variables included: treatment condition, between-person autonomous motivation, and between-person controlled motivation. As well, the cross-level interactions of time with between-person autonomous motivation, between-person controlled motivation, and treatment condition were included. The autoregressive correlation was -.37, $p < .10$. Significant effects were found for the main effect of within-person autonomous motivation, $B = -.202$, $SE = .010$, $t (125) = -2.05$, $p < .05$, the interaction of time and between-person autonomous motivation, $B = -.036$, $SE = .013$, $t (68) = -2.86$, $p < .01$, and the interaction of time and between-person controlled motivation, $B = .021$, $SE = .009$, $t (72) = 2.32$, $p < .05$. The within-person effect of autonomous motivation indicated that, controlling for all the other predictors, patients reported lower levels of depression at those sessions where their autonomous motivation was higher than usual.

The interactions with the between-subject predictors were interpreted by calculating simple slopes of time for low (-1) or high (+1) levels of the predictor. Negative slopes imply decreases in depression over time. Patients with high overall levels of autonomous motivation reported more rapid decreases in depression (simple

slope = -.107, SE = .017, t (69) = -6.47, p < .001) than did patients with relatively low levels of autonomous motivation (simple slope = -.036, SE = .016, t (70) = -2.22, p < .05). In contrast, patients with low overall levels of controlled motivation reported more rapid decreases in depression (simple slope = -.092, SE = .014, t (72) = -6.73, p < .001) than did patients with relatively high levels of controlled motivation (simple slope = -.050, SE = .013, t (70) = -3.75, p < .001). Thus, between-person differences in autonomous motivation, between-person differences in controlled motivation, and within-person differences in autonomous motivation were all predictive of depressive severity. These findings extend Zuroff et al.'s (2007) and argue for the importance of identifying predictors of the two forms of motivation.[1]

PREDICTION OF AUTONOMOUS AND CONTROLLED MOTIVATION BY AUTONOMY SUPPORT AND SELF-CRITICISM

Autonomous Motivation. The fixed effects in the model included controlled motivation (to account for the shared variance between the two forms of motivation) and the level-1 variables, grand-mean centered time and within-person autonomy support. The level-2 variables included treatment condition, between-person autonomy support, and Self-Criticism. Self-Criticism was standardized prior to the analysis. The autoregressive correlation was r = .61, p < .001. Significant effects were found for controlled motivation (B = .130, SE = .040, t (283) = 3.23, p < .01), and both within-person autonomy support (B = .535, SE = .125, t (157) = 4.27, p < .001) and between-person autonomy support (B = .569, SE = .127, t (95) = 4.47, p < .001; See Table 3). Thus, as predicted, higher autonomy support was associated with higher autonomous motivation both between-person and within-person. The difference in magnitude between the between-person and within-person slopes, sometimes called the *contextual effect*, was tested using an ESTIMATE statement in SAS; the two slopes were found not to differ significantly, t (211) = .19, p > .75.

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1. Supplementary information is available from the authors, including complete results of the analyses and figures displaying estimated means for depressive severity to illustrate the interactions of time with between-person autonomous motivation and between-person controlled motivation.

TABLE 3. Summary of Fixed Effects in Multilevel Models Predicting Autonomous and Controlled Motivation

Predictor Variable	Autonomous Motivation			Controlled Motivation		
	B	SE	F	B	SE	F
Within-Person						
Other motivational variable	.130	.040	10.42**	.213	.073	8.62**
Time	.019	.008	5.48*	-.011	.008	1.82
Autonomy support	.535	.125	18.22**	-.164	.178	.85
Between-Person						
Treatment Condition			1.70			4.61*
Autonomy support	.569	.127	19.97***	.227	.220	1.07
Self-Criticism	-.070	.067	1.06	.267	.113	5.56*

Note. Other motivational variable refers to controlled motivation in the analysis for autonomous motivation, and vice versa. Time refers to grand-mean centered time. Numerator degrees of freedom for F-tests were 2 for tests of Condition and 1 for all other effects. Denominator degrees of freedom varied based on the Kenward-Roger estimates; full details are available from the authors.
*p < .05; **p < .01; ***p < .001

Self-Criticism did not predict autonomous motivation. Treatment condition was examined as a potential moderator of the predictors of autonomous motivation, but no interaction with treatment condition was statistically significant.

We next explored the possibility that the between-person or within-person components of autonomy support might interact with time in the prediction of autonomous motivation, although no hypotheses had previously been stated. When the two interaction terms were added to the multilevel model, a significant effect for between-person autonomy support × Time emerged, $B = .017$, $SE = .008$, $t (77) = 2.13$, $p < .05$. The interaction was probed by standardizing between-person autonomy support and calculating estimated values for autonomous motivation for low (-1 SD) and high (+1 SD) values of between-person autonomy support at three points in time: early (approximately week 3, grand-mean centered time = -6.55), middle (grand-mean centered time = 0), and late (approximately week 16, grand-mean centered time = 6.55). We also tested simple slopes for time in those with low or high levels of between-person autonomy support. The results are displayed in Figure 1. At all three points in time, autonomous motivation was significantly higher (*p*s <= .01) among those high rather than low in between-person autonomy support. Moreover, patients with high between-person au-
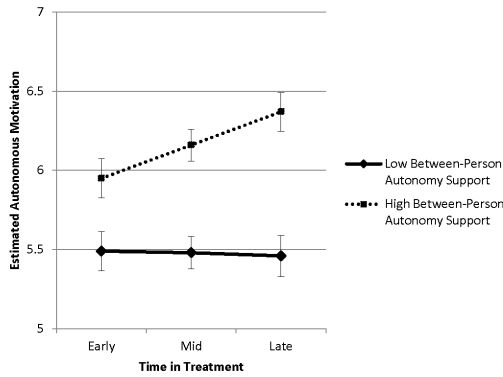
FIGURE 1. Estimated autonomous motivation as a function of time in treatment and between-person differences in perceived autonomy support. Error bars represent estimated SEs. Autonomous motivation increased significantly over time for those patients who were high (+1 SD) in autonomy support, but did not change significantly for those patients who were low (–1 SD) in autonomy support.

tonomy support showed significant increases in autonomous motivation over the course of treatment (simple slope = .032, SE = .011, t (73) = 3.02, p < .01), whereas those low in between-person autonomy support did not (simple slope = 0.00, ns).

Controlled Motivation. The same fixed effects were entered as predictors, except that in this case autonomous motivation was included to control for shared variance between the two measures of motivation. The autoregressive correlation was r = .03, ns. Significant effects were found for autonomous motivation (B = .213, SE = .073, t (289) = 2.94, p < .01) and Self-Criticism (B = .267, SE = .113, t (90) = 2.36, p < .05). Thus, as predicted, Self-Criticism was positively associated with controlled motivation. (See Table 3.) There was no significant relation between autonomy support and controlled motivation. Treatment condition was examined as a potential moderator of the predictors of controlled motivation, but no interaction with treatment condition was statistically significant. Exploratory tests of the interactions of time with the between-person and within-person components of autonomy support found that neither was significant.

SUPPLEMENTARY ANALYSES

It is conceivable that the relations between the motivational variables and the predictor variables actually reflected the influence of a third variable. Severity of depression is one such potential confounding variable; higher levels of depression might give rise to both decreased autonomous motivation and decreased perceived autonomy support. Scores on the BDI-II were available for 76, 73, 74, and 95 patients at the four time points. Because we wished to treat the BDI-II as a predictor rather than an outcome, between-person and within-person scores for depression were computed following Curran and Bauer's (2011) recommendations. The analyses examining predictors of autonomous and controlled motivation were then repeated, with the addition of the between-person and within-person BDI scores as predictors. All of the previously reported significant effects remained significant when controlling the BDI. It therefore seems unlikely that the effects of autonomy support and personality were artifacts attributable to severity of depression as a confounding variable.

We also examined recurrence status and the duration of the present episode as potential confounds of between-person relations. No significant relations were found between the number of prior episodes of depression, the dichotomous variable of more or less recurrent depression, or the duration of the episode and between-person levels of autonomous motivation, controlled motivation, and autonomy support. Thus, there was no evidence that the reported level-2 relations were artifactual.

We repeated the primary analyses for autonomous motivation using lagged autonomy support in place of concurrent autonomy support. These analyses were restricted to the three time points at which autonomous motivation was assessed (Session 8, Session 13, and posttreatment) and for which a lagged measure of autonomy support was available. Lagged levels of autonomy support were not significant prospective predictors of autonomous motivation. Thus, the level-1 relation between autonomy support and autonomous motivation appeared to reflect concurrent, proximal influences rather than distal influences from lagged values 3–5 weeks in the past.

Finally, we conducted sensitivity analyses by repeating all analyses using the conventional centering procedure for separating be-

tween-person and within-person effects (Kreft & De Leeuw, 1998) rather than Curran and Bauer's (2011) procedure. All significant effects remained significant, and only modest changes in parameter estimates were observed.

DISCUSSION

Three principal sets of findings emerged from the analyses. The first set of findings clarified the nature of autonomous and controlled motivation for treatment and helped to identify their similarities and differences. The ICCs for both variables were moderately large, indicating the presence of both between-person and within-person variability in scores. However, the motivational variables displayed only a moderate between-person correlation and a negligible within-person correlation with one another. The moderate amount of shared variance between autonomous and controlled motivation at the person level might reflect individual differences in the overall intensity of their motivation for treatment or possibly differences in a response set such as acquiescence. Thus, the measures of autonomous and controlled motivation for treatment were alike in having both a stable, trait-like component and a contextually sensitive, state-like component, but were sufficiently independent of one another to support treating them as separate predictors. Another difference that emerged was that autonomous motivation increased over the course of treatment, whereas controlled motivation did not change significantly.

The second set of findings concerned the relations between the motivational variables and depressive severity. Between-person differences in both autonomous and controlled motivation predicted the rate of change in depressive severity. Moreover, within-person differences in autonomous motivation predicted sessional variability in depressive severity. The prior analyses by Zuroff et al. (2007) provided evidence that autonomous motivation measured early in treatment prospectively predicts subsequent treatment response, while the present findings demonstrate associations between motivation and depressive severity throughout the course of treatment. Although we cannot definitively rule out the reverse causality interpretation that depressive severity had a causal impact on patients' motivation for treatment, the present results suggest that it

is worthwhile to search for personality and contextual predictors of the two forms of motivation.

Third, and consistent with SDT, both higher between-person and higher within-person scores on autonomy support were associated with higher levels of autonomous motivation. That is, patients who were characterized by consistently high levels of autonomy support were also characterized by high levels of autonomous motivation, and sessions where perceived autonomy support was high were characterized by high levels of autonomous motivation. Evidence for a causal relation between autonomy support and autonomous motivation would have been stronger if we had found significant lagged effects, but SDT does not require that contextual effects persist over periods of 3–5 weeks. It appears, instead, that contextual effects on motivation operate over fairly brief periods of time, suggesting the possibility of short-term fluctuations in autonomous motivation during on-going endeavors such as psychotherapy. Controlled motivation was not predicted by the contextual variable of autonomy support, but instead was predicted by the trait of self-criticism. We subsequently discuss these findings first in relation to SDT research and then in relation to research on psychotherapy process. Although we have no theoretical basis for expecting that our results would be specific to depressed outpatients, we must acknowledge that the generalizability of our conclusions to other patient groups cannot be assumed and will require additional research to demonstrate.

IMPLICATIONS FOR SELF-DETERMINATION THEORY

The findings are consistent with the extensive prior literature demonstrating that autonomy support predicts autonomous motivation (Ryan & Deci, 2008b), but extend that literature into the realm of psychotherapy. Moreover, we found evidence that autonomy support and the two forms of motivation have both trait-like and context-dependent characteristics. To our knowledge this is the first study to use multilevel modelling to study trait and contextual influences within a single design; the results demonstrate that between-person and within-person effects of autonomy support are separable and of approximately equal magnitude.

Our results also support Koestner et al.'s (2008) suggestion that autonomous and controlled motivation can fruitfully be treated

as distinguishable dimensions of motivation rather than as polar opposites to be combined into a single index. We found that the two forms of motivation displayed different levels of stability as indexed by ICCs, were modestly correlated at both the between-subject level and the within-subject level, displayed different patterns of mean changes over the course of therapy, and were related differently to the personality and contextual predictors. Previous studies (McBride et al., 2010; Pelletier et al., 1997; Zuroff et al., 2007) also found that autonomous and controlled motivation were differently related to treatment outcome. There may be research contexts in which it is unnecessary to keep the two forms of motivation distinct, but in the context of the treatment of depression it appears to be preferable to do so.

IMPLICATIONS FOR PSYCHOTHERAPY PROCESS

Psychotherapists (and physicians prescribing psychoactive medications) commonly ask themselves, "How motivated is this client for treatment?" Perhaps the most important clinical implication of our findings is that this familiar question is oversimplified. Client motivation has to be separated into at least two broad forms, autonomous and controlled. Autonomous motivation is generally a good prognostic sign; controlled motivation's relation to outcome is less certain, but in some cases may predict worse outcome. Moreover, both forms of motivation were shown to fluctuate over the course of treatment, implying that clinicians must make efforts to continuously monitor clients' motivations and their perceptions of the extent to which the therapist is autonomy supportive.

It was surprising to us that over the course of treatment controlled motivation was significantly higher in the CBT and IPT conditions than in the PHT-CM condition. This finding may partially explain why the PHT-CM condition produced better outcomes than the two psychotherapy conditions (Zuroff et al., 2007), which is an unusual finding in clinical trials for depression. It remains to be seen whether these patterns will replicate, but they suggest that attention should be devoted to possible differences in motivation elicited by different treatments.

In light of the positive implications of perceived autonomy support and autonomous motivation, it was reassuring to see that mean levels of these variables increased over the course of treat-

ment, whereas mean levels of controlled motivation remained unchanged. Although the increases in autonomy support and autonomous motivation might be dismissed as artifacts of repeated measurements, this possibility seems unlikely because of the absence of change in controlled motivation in the face of the same measurement regimen. One possibility is that therapists became objectively more autonomy supportive as treatment progressed, and this allowed patients to deepen their commitment to therapy. Testing this interpretation would require recording sessions and having them rated by objective observers. It is also possible that the temporal changes reflected internal changes in patients. As patients came to understand themselves and/or the process of psychotherapy better, their perceptions of their therapists may have changed and their own motivation for continuing in treatment may have become more autonomous.

It is noteworthy that none of the findings discussed previously were moderated by treatment condition. Although differences might emerge as other treatments and other disorders are studied, the present results are consistent with Zuroff et al.'s (2007) proposal that self-determination theory variables and processes are common factors that operate across the various schools of therapy.

Given the robust relations observed between perceived autonomy support and higher autonomous motivation in the present study, as well as extensive experimental work in nontreatment contexts (Ryan & Deci, 2008b) that supports a causal role for autonomy support, it seems that more attention should be directed toward autonomy support by both clinicians and researchers. From a clinical perspective, the results imply that clinicians should strive to provide high levels of autonomy support from the beginning phases of treatment and to maintain that support throughout the course of treatment. When impasses or alliance ruptures occur in therapy, one place to look for the problem and for potential solutions is change in autonomy support. One could imagine, for example, that a therapist who was especially invested in some therapeutic technique might introduce it in a less autonomy supportive fashion than previous techniques, and that an increase in controlling responses might have adverse effects on the patient's autonomous motivation and perhaps the therapeutic alliance as well. A therapist who recognized that this had occurred could discuss or reintroduce the technique with greater attention to autonomy support; that is, providing a rationale, recognizing the client's feelings about the

technique, providing alternative choices where possible, and minimizing overtly controlling language.

These considerations raise the broader theoretical question of what determines levels of perceived autonomy support over the course of treatment. We think it is likely that a wide variety of factors are involved, including: (1) characteristics of the client which may pull for lower or higher levels of autonomy support; (2) characteristics of the client which influence how they perceive or encode the levels of autonomy support that are actually provided by the therapist; (3) characteristics (e.g., personality variables) of the therapist that influence autonomy support; (4) interactions between client and therapist variables (e.g., the combination of a dispositionally submissive client with a dispositionally dominant therapist might lead to low levels of autonomy support); (5) sessional content, some of which may pull for more directive approaches; and (6) stage of treatment (e.g., early, middle, late, and termination). In dynamic treatments, transference and counter-transference patterns would certainly be expected to influence perceived autonomy support. Ryan and Deci (2008a) also discussed how different schools of therapy might have differing implications for therapists' autonomy support. All of the preceding suggestions require testing in future studies.

Self-Criticism emerged as the primary predictor of controlled motivation. It is interesting that the more temporally stable of the two forms of motivation was linked to a stable personality characteristic that has been shown to interfere with the process and outcome of therapy (Blatt & Zuroff, 2005; Blatt, Zuroff, Hawley, & Auerbach, 2010). Although the relation between controlled motivation and outcome is uncertain, with some studies finding no effect (Zuroff et al., 2007) and others finding a negative effect (present study; McBride et al., 2010), it certainly does not appear to be beneficial. If a clinician considers that it is important to reduce controlled motivation for treatment as well as to enhance autonomous motivation, special attention may be required for patients who are highly self-critical. Such patients may require specific interventions in addition to overall autonomy supportiveness, and those interventions may need to be employed for longer periods of time. One promising candidate for intervening with self-criticism is training in self-compassion (Gilbert, 2005).

LIMITATIONS OF THE STUDY

Although the results were largely consistent with our theoretical predictions, there remain limitations on the conclusions we can draw. First, the study was a randomized controlled trial of three manualized treatments for a single disorder. It remains to be seen whether similar results would be obtained with other disorders, other treatments, or in naturalistic settings. Second, we obtained only four measures of the SDT variables over the course of the 16-week treatments. More fine-grained analyses with assessments at every session would allow more sensitive tests of the factors predicting fluctuations in autonomy support and the two forms of motivation. Moreover, several theoretically-relevant variables (e.g., dispositional differences in motivational orientation, relational support, competence support) were not assessed and their contributions to psychotherapeutic process are currently unknown. Third, observer ratings of therapists' in-session behavior would be of value in separating objective and perceived levels of autonomy support, and clarifying which behaviors are especially important for clinicians striving to enhance autonomous motivation in their clients. Finally, we were unable to examine therapist effects (Baldwin, Wampold, & Imel, 2007; Zuroff, Kelly, Leybman, Blatt, & Wampold, 2010) because most of the therapists treated only a few patients. It is likely that some therapists excel at being autonomy supportive and facilitating the emergence of autonomous motivation in their clients, and these therapist effects should be examined in future studies.

CONCLUSIONS

Despite these limitations, the findings strongly support the overall strategy of bringing the insights of SDT (Ryan & Deci, 2008a; Ryan et al., 2011) to bear on the process of psychotherapy. Autonomous and controlled motivation are distinguishable aspects of patients' motivations for treatment, and they reflect both contextual factors such as perceived autonomy supportive from the therapist and dispositional qualities of patients such as self-criticism. Understanding determinants of fluctuations in these motivational variables is an important challenge for psychotherapy researchers.

REFERENCES

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Baldwin, S. A., Wampold, B. E., & Imel, Z. E. (2007). Untangling the alliance-outcome correlation: Exploring the relative importance of therapist and patient variability in the alliance. *Journal of Consulting and Clinical Psychology*, *75*, 842–852.

Beck, A. T., Rush, A., Shaw, B., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.

Blatt, S. J. (2004). *Experiences of depression: Theoretical, clinical and research perspectives*. Washington, DC, American Psychological Association.

Blatt, S. J. (2008). *Polarities of experience: Relatedness and self-definition in personality development, psychopathology, and the therapeutic process*. Washington, DC, American Psychological Association.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology*, *85*, 383–389.

Blatt, S. J., & Homann, E. (1992). Parent-child interaction in the etiology of dependent and self-critical depression. *Clinical Psychology Review*, *12*, 47–91.

Blatt, S. J., & Zuroff, D.C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review*, *12*, 527–562.

Blatt, S. J., & Zuroff, D. C. (2005). Empirical evaluation of the assumptions in identifying evidence based treatments in mental health. *Clinical Psychology Review*, *25*, 459–486.

Blatt, S. J., Zuroff, D. C., Hawley, L. L., & Auerbach, J. S. (2010). Patient personality, the therapeutic relationship, and change in mental representation: Fundamental determinants of sustained therapeutic change. *Psychotherapy Research, 9*, 37-54.

Bulmash, E., Harkness, K. L., Bagby, R. M., & Stewart, J. G. (2009). Personality, stressful life events, and treatment response in major depression. *Journal of Consulting and Clinical Psychology*, *77*, 1067–1077.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology*, *62*, 583–619.

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality*, *62*, 19–142.

Deci, E. L., & Ryan, R. M. (2000). The what and the why of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268.

Fawcett, J., Epstein, P., Fiester, S. J., Elkin, I., & Autry, J. H. (1987). Clinical management—imipramine/placebo administration manual. NIMH treatment of depression collaborative research program. *Psychopharmacological Bulletin*, *23*, 309–324.

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J.B.W., & Benjamin, L. S., (1997). *User guide for the structured clinical interview for DSM-IV axis II personality disorders*. Washington, DC: American Psychiatric Press.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J.B.W. (1995). *Structured clinical interview for DSM-IV axis I disorders—Patient edition, Version 2.0*. New York: New York Biometrics Research Department.

Fournier, M. A., Moskowitz, D. S., & Zuroff, D. C. (2007). Integrating dispositions, signatures, and the interpersonal domain. *Journal of Personality and Social Psychology, 94*, 531-545.

Gilbert, P. (Ed.). (2005). *Compassion: Conceptualisations, research, and use in psychotherapy.* London: Routledge.

Hamilton, M. A. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*, *6*, 56–62.

Hamilton, M. A. (1967). Development of a rating scale for primary depressive illness. *British Journal of Social and Clinical Psychology*, *6*, 278–296.

Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality*, *76*, 1201–1230.

Kreft, I., & De Leeuw, J. (1998). *Introducing multilevel modeling*. London, Sage.

Luyten, P., & Blatt, S. J. (2010). Integrating theory-driven and empirically-derived models of personality development and psychopathology: A proposal for DSM V. *Clinical Psychology Review*, *31*, 52–68.

Mansour, S., Bruce, K. R., Steiger, H., Zuroff, D. C., Horowitz, S., Anestin, A., & Sycz, L. (2012). Autonomous motivation: A predictor of treatment outcome in bulimia-spectrum eating disorders. *European Eating Disorders Review, 20*, e116-e122.

Markland, D., Ryan, R. M., Tobin, V. J., & Rollnick, S. (2005). Motivational interviewing and self-determination theory. *Journal of Social and Clinical Psychology*, *24*, 811–831.

Marshall, M., Zuroff, D. C., McBride, C., & Bagby, R. M. (2008). Self-criticism predicts differential response to treatment for major depression. *Journal of Clinical Psychology*, *64*, 231–244.

McBride, C., Atkinson, L., Quilty, L. C., & Bagby, R. M. (2006). Attachment as a moderator of treatment outcome in major depression: A randomized controlled trial of interpersonal psychotherapy vs. cognitive behaviour therapy. *Journal of Consulting and Clinical Psychology*, *74*, 1041–1054.

McBride, C., Zuroff, D. C., Ravitz, P., Koestner, R., Moskowitz, D. S., Quilty, L., & Bagby, R. M. (2010). Autonomous and controlled motivation and interpersonal therapy for depression: Moderating role of recurrent depression. *British Journal of Clinical Psychology*, *49*, 529–545.

Michalak, J., Klappheck, M. A., & Kosfelder, J. (2004). Personal goals of psychotherapy patients: the intensity and the "why" of goal-motivated behavior and their implications for the therapeutic process. *Psychotherapy Research*, *14*, 193–209.

Moskowitz, D. S. (2009). Coming full circle: Conceptualizing the study of interpersonal behaviour. *Canadian Psychology*, *50*, 33–41.

Nezu, A. M., Nezu, C. M., McClure, K. S., & Zwick, M. L. (2002). Assessment of depression. In I. H. Gotlib and C. L. Hammen (Eds.), *Handbook of depression* (pp. 61–85). New York: Guilford.

Pelletier, L. G., Tuson, K. M., & Haddad, N. K. (1997). Client motivation for therapy scale: A measure of intrinsic motivation, extrinsic motivation, and amotivation for therapy. *Journal of Personality Assessment*, *68*, 414–435.

Powers, T. A., Koestner, R., Lacaille, N., Kwan, L., & Zuroff, D. C. (2009). Self-criticism, motivation, and goal progress of athletes and musicians: A prospective study. *Personality and Individual Differences*, *47*, 279–283.

Powers, T. A., Koestner, R., & Zuroff, D. C. (2007). Self-criticism, goal motivation, and goal progress. *Journal of Social and Clinical Psychology*, *26*, 826–840.

Quilty, L. C., McBride, C., & Bagby, R. M. (2008). Evidence for the cognitive mediational model of cognitive behavioural therapy for depression. *Psychological Medicine*, *38*, 1531–1541.

Rector, N. A., Bagby, R. M., Segal, Z. V., Joffe, R. T., & Levitt, A. (2000). Self-criticism and dependency in depressed patients treated with cognitive therapy or pharmacotherapy. *Cognitive Therapy and Research*, *24*, 571–584.

Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, *98*, 209–218.

Rosnow, R. L., & Rosenthal, R. (1996). Computing contrasts, effect sizes, and counternulls on other people's published data: General procedures for research consumers. *Psychological Methods*, *1*, 331–340.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, *63*, 397–427.

Ryan, R. M., & Deci, E. L. (2000). Self determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68–78.

Ryan, R. M., & Deci, E. L. (2008a). A self-determination approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology*, *49*, 186–193.

Ryan, R. M., & Deci, E. L. (2008b). Self-determination theory and the role of basic psychological needs in personality and the organization of behavior. In O. P. John, R. W. Robbins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 654–678). New York: Guilford.

Ryan, R. M., Lynch, M. F., Vansteenkiste, M., & Deci, E. L. (2011). Motivation and autonomy in counseling, psychotherapy, and behavior change: A look at theory and practice. *The Counseling Psychologist*, *39*, 193–260.

SAS Institute Inc. (2008). *SAS/STAT® 9.2 User's Guide*. Cary, NC: SAS Institute Inc.

Shahar, G., Henrich, C. C., Blatt, S. J., Ryan, R., & Little, T. (2003). Interpersonal relatedness, self-definition, and their motivational orientation during adolescence. A theoretical and empirical integration. *Developmental Psychology*, *39*, 470–483.

Shahar, G., Kanitzki, E., Shulman, S., & Blatt, S. J. (2006). Personality, motivation and the construction of goals during the transition to adulthood. *Personality and Individual Differences*, *40*, 53–63.

Sheldon, K. M., Joiner, Jr., T. E., Pettit, J. W., & Williams, G. (2003). Reconciling humanistic ideals and scientific clinical practice. *Clinical Psychology: Science and Practice*, *10*, 302–315.

Snijders, T., & Bosker, R. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. London: Sage.

Vansteenkiste, M., & Sheldon, K. M. (2006). There's nothing more practical than a good theory: Integrating motivational interviewing and self-determination theory. *British Journal of Clinical Psychology*, *45*, 63–82.

Wallace, D., & Green, S. B. (2002). Analysis of repeated-measures designs with linear mixed models. In D. S. Moskowitz & S. L. Hershberger (Eds.), *Analyses of repeated measures data: Advances and methods* (pp. 103–134). Hillsdale, NJ: Erlbaum.

Weissman, M. M., Markowitz, J. C., & Klerman, G. L. (2000). *Comprehensive guide to interpersonal psychotherapy*. New York: Basic Books.

Williams, G. C., Freedman, Z., & Deci, E. L. (1998). Supporting autonomy to motivate patients with diabetes for glucose control. *Diabetes Care*, *21*, 1644–1651.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology*, *70*, 115–126.

Zuroff, D. C., Kelly, A. C., Leybman, M. J., Blatt, S. J., & Wampold, B. E. (2010). Between-therapist and within-therapist differences in the quality of the therapeutic relationship: Effects on maladjustment and self-critical perfectionism. *Journal of Clinical Psychology*, *66*, 681–697.

Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., Marshall, M., & Bagby, R. M. (2007). Autonomous motivation for therapy: A new common factor in brief treatments of depression. *Psychotherapy Research*, *17*, 137–148.

Zuroff, D. C., Mongrain, M., & Santor, D. A. (2004). Conceptualizing and measuring personality vulnerability to depression: Comment on Coyne and Whiffen (1995). *Psychological Bulletin*, *130*, 489–511.

Zuroff, D. C., Moskowitz, D. S., Wielgus, M. S., Powers, T. A., & Franko, D. L. (1983). Construct validation of the depressive experiences questionnaire. *Journal of Research in Personality*, *17*, 226–241.

Zuroff, D. C., Quinlan, D. M., & Blatt, S. J. (1990). Psychometric properties of the depressive experiences questionnaire. *Journal of Personality Assessment*, *55*, 65–72.

Zuroff, D. C., Santor, D. A., & Mongrain, M. (2005). Dependency, self-criticism, and maladjustment. In J. S. Auerbach, K. J. Levy, and C. E. Schaffer (Eds.), *Relatedness, self-definition and mental representation: Essays in honor of Sidney J. Blatt*. (pp. 75–90). Brunner-Routledge: London.