



Autonomous and controlled motivation and interpersonal therapy for depression: Moderating role of recurrent depression

Carolina McBride^{1*}, David C. Zuroff², Paula Ravitz¹,
Richard Koestner², Debbie S. Moskowitz², Lena Quilty¹
and R. Michael Bagby¹

¹Centre for Addiction and Mental Health and Department of Psychiatry,
University of Toronto, Ontario, Canada

²McGill University, Montreal, Quebec, Canada

Objectives. We examined the moderating role of depression recurrence on the relation between autonomous and controlled motivation and interpersonal therapy (IPT) treatment outcome.

Design. The investigation was conducted in an out-patient mood disorders clinic of a large university-affiliated psychiatric hospital. The sample represents a subset of a larger naturalistic database of patients seen in the clinic.

Methods. We examined 74 depressed out-patients who received 16 sessions of IPT. The Beck Depression Inventory-II, administered at pre-treatment and post-treatment, served as a measure of depressive severity. Measures of motivation and therapeutic alliance were collected at the third session.

Results. In the entire sample, both the therapeutic alliance and autonomous motivation predicted higher probability of achieving remission; however, the relation differed for those with highly recurrent depression compared to those with less recurrent depression. For those with highly recurrent depression, the therapeutic alliance predicted remission whereas autonomous motivation had no effect on remission. For those with less recurrent depression, both autonomous motivation and the therapeutic alliance predicted better achieving remission. Controlled motivation emerged as a significant negative predictor of remission across both groups.

Conclusion. Taken together, these results highlight the possible use of motivation theory to inform and enrich therapeutic conceptualizations and interventions in clinical practice, but also point to the importance of modifying interventions based on the chronicity of a client's depression.

* Correspondence should be addressed to Dr Carolina McBride, Interpersonal Therapy Clinic, Centre for Addiction and Mental Health, Clarke Division, 250 College Street, Toronto, Ontario, Canada M5T 1R8 (e-mail: carolina_mcbride@camh.net).

Research over the past 20 years has found that factors common to all psychotherapies are powerful predictors of outcome (Horvath & Symonds, 1991; Martin, Garske, & David, 2000; Safran & Muran, 2000, 2006; Wampold, 2001, Wampold *et al.*, 1997; Zuroff & Blatt, 2006). The therapeutic alliance has been the most studied of the common factors and has repeatedly emerged as a robust predictor of positive outcome (Beutler *et al.*, 2004; Horvath & Bedi, 2002; Horvath & Symonds, 1991; Martin *et al.*, 2000). Recently, a new common factor, *autonomous motivation in treatment*, defined as the extent to which patients experience participation in treatment as a freely made choice emanating from themselves, has emerged as another powerful predictor of treatment outcome (Zuroff *et al.*, 2007).

Motivation has been theorized to fall on a continuum from controlled regulation of behaviour to autonomous regulation of behaviour (Deci & Ryan, 1985, 2000; Ryan, 1995). At the most controlled end of the continuum lies external motivation, which refers to performing an action for the sake of obtaining rewards or avoiding punishments, including the approval or disapproval of significant others. At the most autonomous end of the continuum lies intrinsic motivation, which refers to performing an action because it is interesting, exciting, or pleasurable in its own right, independent of any subsequent external reward. The distinction between autonomous and controlled motivation has parallels in other motivation traditions. For example, McClelland, Koestner, and Weinberger's (1989) distinction between implicit and self-attributed forms of achievement motivation noted that implicit achievement motive is more responsive to incentives intrinsic to an activity whereas self-attributed achievement motivation was more responsive to controlling social factors such as the experimenter's behaviour.

Although some researchers have created a single summary index of relative autonomy by taking a weighted sum over the levels of autonomous and controlled motivation, Judge, Bono, Erez, and Locke (2005) noted two problems with this procedure. First, autonomous motivation and controlled motivation were not significantly negatively related to each other, as one might expect if a difference score were to be calculated with them. Instead, the scales were non-significantly positively related. Second, the relations of autonomous and controlled motivation to various goal outcomes were not mirror-image opposites. Indeed, in two studies of working adults, autonomous motivation was associated with positive outcomes whereas controlled motivation was unrelated to outcomes (rather than being negatively related to positive outcomes). Another recent article included a meta-analysis of 11 studies and showed that autonomous and controlled goal motivations were uncorrelated (average $r = .00$) and that only autonomous motivation was related (positively) to goal outcomes (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). Thus in the present study, we examined autonomous and controlled motivation as distinct potential predictors of treatment outcome.

Autonomously motivated behaviour has been shown to improve treatment adherence (Williams, Rodin, Ryan, Grolnick, & Deci, 1998) and to positively impact treatment outcome for a wide range of health-related problems such as diabetes, drug and alcohol use, and smoking (Ryan, Plant, & O'Malley, 1995; Williams, Freedman, & Deci, 1998; Williams, Gagné, Ryan, & Deci, 2001; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, McGregor, Zeldman, Freedman, & Deci, 2004; Zeldman, Ryan, & Fiscella, 2004). Recently, motivation research has been extended to the psychotherapy realm.

Pelletier, Tuson, and Haddad (1997), for example, studied diagnostically heterogeneous out-patients receiving various forms of psychotherapy and found that

autonomous motivation was positively related to reports of positive mood during sessions, satisfaction with therapy, and intention to persist in therapy. In another recent study, Michalak, Klappheck, and Kosfelder (2004) found that psychiatric out-patients undergoing cognitive behaviour therapy (CBT) reported better session-by-session outcomes when their motivation was more autonomous compared to when their motivation was more controlled. Finally, Zuroff *et al.* (2007) investigated the relation between autonomous motivation and treatment outcome for 95 depressed out-patients randomly assigned to receive interpersonal therapy (IPT), CBT, or pharmacotherapy with clinical management. Autonomous motivation was found to be a stronger predictor of outcome than the therapeutic alliance, predicting higher probability of achieving remission and lower post-treatment depression severity across all three treatments.

The goal of the current investigation was to extend our previous research that examined the relationship between motivation and psychotherapy outcome for depressed individuals. To this end, in this study we tested whether depression recurrence moderates the effect of motivation on outcome for depressed patients treated with IPT. More specifically, our question was whether autonomous and controlled motivation differentially predict IPT treatment outcome for individuals with highly recurrent depression (defined as three or more previous episodes of depression) compared to individuals with less recurrent depression (defined as two or fewer previous episodes of depression). This classification was based on previous research (Ma & Teasdale, 2004; Teasdale *et al.*, 2000) that has found differences between depressed patients with three or more previous depressive episodes versus those with two or fewer previous depressive episodes. Teasdale *et al.* (2000), for example, found that Mindfulness-Based Cognitive Therapy significantly reduces risk of relapse for patients with three or more previous episodes of depression, but not for those with only two previous episodes. Ma and Teasdale (2004) found similar results but also noted additional differences between the groups; the two previous episode group reported less childhood adversity and later first depression onset than the three or more previous episode group.

The recurrent nature of depression has been well-established, and increasing empirical attention has been drawn to the problematic issue of recovery in this population (Fava, Tomba, & Grandi, 2007; Rush *et al.*, 2006). A large proportion of successfully treated depressed individuals relapse within several months of clinical remission (Klerman & Weissman, 1992), with the risk of recurrence increasing with each successive episode. By 12 months post-remission between 35 and 55% of formerly depressed patients have been reported to experience a relapse episode (Belsher & Costello, 1988). More recent findings from the largest depression trial to date, the STAR*D (Rush *et al.*, 2006), demonstrates the difficulty in achieving remission in depression and reinforces the relapsing nature of this disorder. Among patients who achieved remission, rates of relapse increased with each successive trial of treatment from 33.5% after the first trial to 50% after the 4th trial. Fava (1999) argues that residual symptoms of depression are a strong predictor of relapse, and that the stage of the depression, (i.e., its longitudinal development including previous episodes) is a critical variable that will determine the conceptualization and treatment model that should be used (Fava *et al.*, 2007).

A key question is whether there are variables that interfere with treatment outcome and make those with highly recurrent depression more likely to relapse compared to those with less recurrent depression. Studies have found that individuals

with highly recurrent depression differ from those with less recurrent depression on a number of variables, even after controlling for levels of depression. Abnormal memory performance, for example, has been found to be associated with highly recurrent depression and not with less recurrent depression (Basso & Bornstein, 1999). Highly recurrent depression has also been reported to be associated with significantly poorer sleep efficiency and greater sleep abnormalities than less recurrent depression (Thase, Kupfer, Buysse, & Ellen, 1995), as well as increased psychosocial impairment (Solomon *et al.*, 2004). As compared to less recurrent depression, highly recurrent depression has been associated with greater symptom severity and illness characteristics (Hollon *et al.*, 2006) and with more treatment resistance (Keller & Boland, 1998). One of the problems with recurrent depression is that each new episode tends to occur sooner and have a more severe, treatment-resistant course than the preceding episode, a phenomenon termed *cycle acceleration* (Greden, 2001).

In light of the many differences between highly recurrent and less recurrent depression, including treatment response, we planned to investigate whether the relation between motivation and IPT treatment outcome differs between these groups. Self-determination theory (Ryan & Deci, 2000) suggests that health benefits are seen when people experience a sense of freedom to do what they find interesting and personally important, and that this type of motivation is fostered by a positive social environment that provides satisfaction of the universal needs for autonomy, relatedness, and competence. It has been suggested that a key element of depression recurrence is problems in the interpersonal arena (Joiner & Coyne, 1999; McCullough, 2000), problems which may well interfere with need satisfaction. It is possible that because individuals with highly recurrent depression are more passive and submissive and tend to have more problematic interpersonal relationships (McCullough, 2000), they may experience lower levels of autonomy, relatedness, and competence in their relationships. In turn, this could impact treatment outcome. Those with less recurrent depression are likely to have more positive social relationships that provide more autonomy support and relatedness and therefore may have higher levels of or be more effectively able to utilize autonomous motivation and optimize treatment outcome. Although these considerations justify exploring the moderating role of recurrence, they are too tentative to view as formal hypotheses. Likewise, as there was insufficient prior evidence on which to base hypotheses for controlled motivation the present analyses were regarded as exploratory.

Method

Participants

The investigation was conducted in an out-patient mood disorders clinic of a large university-affiliated psychiatric hospital. In order to be included in the analyses reported here, patients had to meet several inclusion and exclusion criteria and to have complete data both pre-treatment and post-treatment. The resulting sample of 74 depressed individuals ($N = 55$ women, $N = 19$ men) represents a subset of a larger naturalistic database of patients seen in the clinic. Patients were referred to the clinic by their GP or psychiatrist for assessment and treatment of major depression. A structured telephone prescreening interview was conducted to obtain demographic information, general medical history, and psychiatric history. Individuals

aged 18–68 who were in good general health, who appeared to meet criteria for a primary diagnosis of major depression disorder, and who did not appear to suffer from psychosis, mania, substance abuse, eating disorder, or borderline personality disorder were scheduled for a more extensive screening assessment. The screening assessment included structured clinical interviews for Axis I disorders, the Beck Depression Inventory-II (BDI-II), as well as self-report questionnaires not used in the current analyses.

To be eligible for treatment, individuals were required to receive a primary diagnosis of Major Depression using the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition, Text Revision (DSM-IV-TR; 2000)*. Exclusion criteria included: BDI-II of less than 15, suicidality, seasonal affective disorder, eating disorder, substance abuse disorder, bipolar disorder, schizoaffective disorder, schizophrenia, organic brain syndrome, post-traumatic stress disorder, and borderline and antisocial personality disorder. In addition, patients were required to have no active medical illnesses.

Eligible patients who gave informed consent were assigned to a therapist for 16 weeks of individual interpersonal psychotherapy. The Weissman, Markowitz, and Klerman (2000) manual was used by the IPT therapists. The therapists included the doctoral level staff of the clinic as well as 30 psychiatry residents, MA students, and PhD students, all of whom were trained in the IPT model by the first or third authors. Of the participants, 57 (77%) were treated by student therapists; 17 (23%) were treated by the clinic staff. Out of the 74 participants, 34 were on antidepressant medication (45.9%). There were 47 participants with less recurrent depression (defined as 2 or less episodes of depression) of whom 18 (38.3%) were on antidepressant medication; there were 27 patients with more recurrent depression (defined as 3 or more episodes of depression) of whom 16 (59.3%) were on antidepressant medication. This difference approached significance, $\chi^2(1, 74) = 3.03, p < .09$.

The mean age of these 74 participants was 39.93 years ($SD = 11.31$). There was no difference in age between those with less recurrent depression ($\chi^2 = 41.23, SD = 11.95$) and those with more recurrent depression ($\chi^2 = 37.67, SD = 9.89$), $F(1, 73) = 1.72, p > .05$. Of the participants, 25 were married or in common law relationships (32.4%); 21.7% indicated they were divorced ($N = 7$) or separated ($N = 9$); 39.2% had never married ($N = 29$); two participants were widowed; and three participants were of unknown relationship status. The sample was predominantly of European descent. Thirteen participants (17.8%) had completed high school or less; 64.9% ($N = 48$) had attended or completed post-secondary education; 16.2% ($N = 12$) had completed postgraduate education; and one participant was of unknown educational status.

In the sample, 21 individuals (28.38%) met criteria for major depressive disorder, single episode, including the following levels of severity: 3 (14.28%) mild, 12 (57.14%) moderate, and 6 (28.57%). Fifty-three individuals (71.62%) met criteria for major depressive disorder, recurrent, including the following levels of severity: 8 (15.09%) mild, 18 (33.96%) moderate, and 27 (50.94%) severe. Twenty-nine individuals (39%) in the sample also met criteria for a secondary Axis I diagnosis; specifically, 12 individuals (16.2%) met criteria for a secondary diagnosis of an anxiety disorder, and 17 individuals (23%) met criteria for a secondary diagnosis of dysthymic disorder.

Measures

Diagnoses

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 DSM-IV-TR (American Psychiatric Association, 2000). Trained PhD level graduate students administered the SCID-I/P during the screening assessment.

Patient-reported severity of depression

The BDI-II (Beck, Steer, & Brown, 1996) is a 21-item widely used self-report measure of the severity of depression. The BDI-II, like its predecessor the Beck Inventory, shows good internal consistency and good convergence with other self-report and interviewer-based measures of depression (Nezu, Nezu, McClure, & Zwick, 2002). Patients completed the BDI-II at the screening assessment and at the end of treatment. Remission was defined as a reduction of at least 50% in BDI-II scores from pre-treatment to post-treatment and a post-treatment BDI-II score of 8 or less.

Motivation for treatment

The Autonomous and Controlled Motivations for Treatment Questionnaire (ACMTQ; Zuroff, Koestner, Moskowitz, McBride, & Ravitz, 2005) includes two six-item subscales, one to assess autonomous motivation and one to assess controlled motivation. The format of the questionnaire was adapted from Williams *et al.*'s (1998) Treatment Self-Regulation Questionnaire (TSRQ) for assessing motivation for managing diabetes. Patients were provided with the stem, 'I participate in IPT because', and then were asked to rate the extent to which they agreed with each of the 12 reasons using a seven-point rating scale anchored by 'strongly disagree' and 'strongly agree'. Of the 12 items, 8 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 with the goal of increasing the reliability of the scales by lengthening them. Two sample items for autonomous motivation are, 'I personally believe that it is the most important aspect of my becoming well', and 'Managing my depression allows me to participate in other important aspects of my life'. Two sample items for controlled motivation are, 'Other people would be upset with me if I didn't', and 'I would feel guilty if I didn't do what my therapist said'. The two subscales correlated modestly but significantly, $r(72) = .25, p < .05$. The alpha for both autonomous and controlled motivation was .85. Participants completed the ACMTQ at their third treatment session.

Initial psychometric evidence for these items came from an earlier study (Zuroff *et al.*, 2005). 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 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, $r(123) = .32, p < .001$.

Therapeutic alliance

The Working Alliance Inventory (WAI; Horvath & Greenberg, 1989) was used to rate the strength of the therapeutic alliance. The WAI consists of 36 self-report items based on

Bordin's (1979) tripartite conception of the alliance. Three versions exist, allowing for patient, therapist, and observer ratings. In the present study, only patient ratings were used because they have been found to be the most predictive of outcome (Martin *et al.*, 2000). Items are scored on a seven-point Likert scale, with the total score ranging from 36 to 252. The alpha for therapeutic alliance was .94. Participants completed the WAI at their third treatment session.

Results

Means and standard deviations for the therapeutic alliance, autonomous motivation, and controlled motivation at session 3 for the total sample and for patients with highly recurrent and less recurrent depression are presented in Table 1. Overall, patients' motivations for treatment were more autonomous than controlled ($t(73) = 11.14$, $p < .001$); this result was found for both patients with highly recurrent depression ($t(26) = 7.54$, $p < .001$) and patients with less recurrent depression ($t(46) = 8.33$, $p < .001$). There were no differences between those with highly recurrent versus those with less recurrent depression in the therapeutic alliance, autonomous motivation, or controlled motivation (all $ps > .25$). The therapeutic alliance was significantly correlated with autonomous motivation across both groups (total sample: $r(72) = .48$, $p < .001$). The correlation between the therapeutic alliance and autonomous motivation remained significant and positive when broken down between the two groups: less recurrent depression: $r(45) = .43$, $p < .01$; highly recurrent depression: $r(25) = .58$, $p < .001$. The therapeutic alliance was unrelated to controlled motivation [total sample: $r(72) = -.10$; less recurrent depression: $r(45) = -.14$; highly recurrent depression: $r(25) = -.03$, all $ps > .30$].

Table 1. Means and standard deviations for measures of therapeutic alliance, autonomous motivation, and controlled motivation for treatment

Variable	Total sample M (SD)	Less recurrent depression sample M (SD)	Highly recurrent depression sample M (SD)
Therapeutic alliance	207.01 (26.09)	208.77 (27.39)	203.95 (23.85)
Autonomous motivation	33.95 (4.99)	34.45 (5.31)	33.10 (4.34)
Controlled motivation	22.25 (8.88)	22.74 (9.18)	21.41 (8.43)

Means and standard deviations for the BDI-II at pre-treatment and post-treatment for the total sample and for those with highly recurrent and less recurrent depression are presented in Table 2. These values are similar to those in many studies of depressed outpatients (e.g., Elkin *et al.*, 1989), with mean pre-treatment scores falling in the moderate range of depression. The percentage of patients achieving treatment remission was 55.6% for those with highly recurrent depression, and 34.0% for those with less recurrent depression; this difference approached statistical significance, $\chi^2(1, 74) = 3.26$, $p < .08$.

Preliminary analyses of other patient characteristics

Preliminary analyses were conducted to examine whether other patient characteristics might be associated with depression recurrence and whether those characteristics

Table 2. Means and standard deviations for BDI-II scores at pre-treatment and post-treatment

Variable	Total sample M (SD)	Less recurrent depression sample M (SD)	Highly recurrent depression sample M (SD)
Pre-treatment BDI-II	28.35 (8.84)	27.89 (8.54)	29.15 (9.45)
Post-treatment BDI-II	13.66 (11.74)	14.79 (12.30)	11.70 (10.62)

might themselves be associated with outcome. We first examined the association of depression recurrence with level of education (college degree or higher vs. high school degree or less), marital status (ever married or common law vs. never married), gender (male vs. female), treatment provider (doctoral level vs. student), medication (antidepressant medication vs. no antidepressant medication), age, pre-treatment BDI-II, and presence of comorbid dysthymic disorder. Missing data for marital status reduced the sample size for this and all subsequent analyses to 71. Depression recurrence was not significantly associated with level of education ($p > .20$), gender ($p > .15$), treatment provider ($p > .50$), age ($p > .19$), pre-treatment depression severity ($p > .65$), and comorbid dysthymic disorder ($p > .30$). Recurrence was significantly associated with marital status, $\chi^2(1, 71) = 4.59, p < .05$; a higher proportion of highly recurrent patients had never married (58.3%) compared with less recurrent patients (31.9%). Recurrence was also associated with medication, $\chi^2(1, 71) = 3.74, p = .05$, with a higher proportion of highly recurrent patients having receiving antidepressant medication (62.5%) than less recurrent patients (38.3%). Next, to determine whether these patient characteristics predicted outcome, we regressed post-treatment BDI-II scores on pre-treatment BDI-II scores and level of education, marital status, gender, treatment provider, medication, presence of dysthymia, and age. After controlling for pre-treatment BDI-II, significant effects were found for marital status ($F(1, 61) = 4.87, p < .05$) and age ($F(1, 61) = 9.59, p < .01$). Better outcome (lower post-treatment depression scores) were achieved by those who were currently or had ever been married compared to the never married and by younger compared to older participants. The other predictors were not significantly related to outcome (all $ps > .20$).

Predictors of post-treatment depressive severity

Treatment outcome was first evaluated using the continuous criterion of post-treatment severity of depressive symptoms. Multiple regression analyses were performed with post-treatment BDI-II scores serving as the dependent variable. Preliminary analyses indicated that the correlation between the measures of alliance autonomous motivation was sufficiently large as to yield undesirable suppression effects when they were entered as simultaneous predictors. Consequently, separate analyses were conducted for therapeutic alliance as a predictor and for the two motivational variables as predictors. Because of their relation to outcome, age, and marital status were included as covariates in all analyses. To simplify interpretation of regression parameters, measures of therapeutic alliance, autonomous motivation, and controlled motivation were standardized with mean = 0 and standard deviation = 1. Slopes (unstandardized regression coefficients, B) for these variables indicate the difference in predicted post-treatment BDI-II units that would be associated with a one SD difference in the predictor variable (or, for dichotomous predictors, one group vs. the other). Negative

slopes indicate lower predicted post-treatment depression and consequently better outcome. Age was centred and divided by 10, so that regression coefficients reflect the influence of a 10-year difference in age. Pre-treatment depression severity scores, age, and marital status were entered first into the model (Step 1), followed by depression recurrence (1 = less recurrent depression and 2 = highly recurrent depression; Step 2), either therapeutic alliance or autonomous and controlled motivation (Step 3), and the two-way interactions between depression recurrence and either therapeutic alliance or autonomous motivation and controlled motivation (Step 4). Results from the regression analyses are presented in Table 3.

Table 3. Summary of hierarchical linear regression analyses for variables (therapeutic alliance, autonomous motivation, controlled motivation) predicting treatment outcome ($N = 71$)

Variables	B	SE B	β	R^2	F	ΔR^2	ΔF
Step 1				.247	7.33***		
BDI-II (pre-treatment)	0.51	.14	0.39***				
Marital status	-7.55	3.31	-0.32*				
Age	4.40	1.43	0.43**				
Step 2				.283	6.5***	.036	3.26
DR	-4.84	2.68	-0.19				
Step 3, adding therapeutic alliance				.294	5.43***	.012	1.12
Therapeutic alliance	-1.33	1.26	-0.11				
Step 3, adding motivation measures				.364	6.09***	.081	4.07*
Controlled motivation	2.11	1.28	0.18				
Autonomous motivation	-3.50	1.29	-0.30**				
Step 4, interaction with alliance				.295	4.46***	.000	.03
DR \times therapeutic alliance	0.513	2.86	0.06				
Step 4, interactions with motivation				.468	6.82***	.105	6.09**
DR \times controlled motivation	-1.73	2.58	0.34				
DR \times autonomous motivation	-15.08	3.54	-1.27***				

Note. DR, depression recurrence; * $p < .05$; ** $p < .01$; *** $p < .001$.

The regression equation for Step 1 was significant, $F(3, 67) = 7.33$, $p < .001$, $R^2 = .247$. Each predictor was statistically significant, with higher post-treatment depression associated with higher pre-treatment depression, never married status, and greater age. In Step 2, depression recurrence approached significance as a predictor, $t(66) = -1.81$, $p < .08$. When the therapeutic alliance was added as Step 3, there was no significant increase in explained variance. However, when the two motivation variables were added in Step 3, the increase in variance explained compared to Step 2 was significant, $F(2, 64) = 6.09$, $p < .001$, change in $R^2 = .081$. Autonomous motivation was significantly related to lower post-treatment depression, $t(64) = -2.72$, $p < .01$, but controlled motivation was not significantly related to post-treatment depression, $p > .15$. When the interaction of depression recurrence and the therapeutic alliance was added as Step 4, the increase in variance explained compared to Step 3 was not significant. In contrast, when the interactions of depression recurrence and the two motivation variables were added in Step 4, the increase in variance explained compared to Step 2 was significant, $F(2, 62) = 6.09$, $p < .01$, change in $R^2 = .105$. The interaction of depression recurrence and autonomous motivation was significant, $t(1, 62) = 3.47$, $p = .001$.

The significant interaction was probed by calculating and testing simple slopes within the highly recurrent and less recurrent groups (Aiken & West, 1991). The interactions are illustrated in Figure 1. Autonomous motivation was related to better outcome among those with less recurrent depression, $B = -5.80$, $t = -4.24$, $p < .001$. Somewhat surprisingly, autonomous motivation was positively related to post-treatment BDI-II scores among those in the highly recurrent group, but this slope was not statistically significant, $B = 3.48$, $t = 1.48$, $p > .15$.

Predictors of remission

Logistic regression analyses were conducted using PROC LOGISTIC, version 9.2 (SAS Institute, 2004) and maximum-likelihood estimation. We again conducted separate analyses using the therapeutic alliance as a predictor and the two motivation variables as predictors. We first tested a model including only age, marital status, highly recurrent versus less recurrent depression as predictors. We then added either the therapeutic alliance or the two motivation variables as predictors. Finally, we tested models that included the interactions of depression recurrence with either therapeutic alliance or the two motivation variables.

The initial model revealed significant effects for age, $\chi^2(1, N = 71) = 4.52$, $p < .05$, odds ratio = 0.516, and depression recurrence, $\chi^2(1, N = 71) = 4.45$, $p < .05$, odds ratio = 0.303. The odds ratios indicate that an increase in age of 10 years decreased patients' chances of remitting by about half and that patients with less recurrent depression were about 30% as likely to achieve remission as patients with highly recurrent depression.

When added to the initial model, the therapeutic alliance emerged as a significant predictor of achieving remission, $\chi^2(1, N = 71) = 4.80$, $p < .05$, odds ratio = 2.00. Patients who reported a stronger therapeutic alliance (+1 *SD*) were twice as likely to achieve remission as those with mean levels of the alliance. The interaction of depression recurrence with the therapeutic alliance was not significant, indicating that the positive effect of the alliance did not differ significantly between less recurrent and highly recurrent patients.

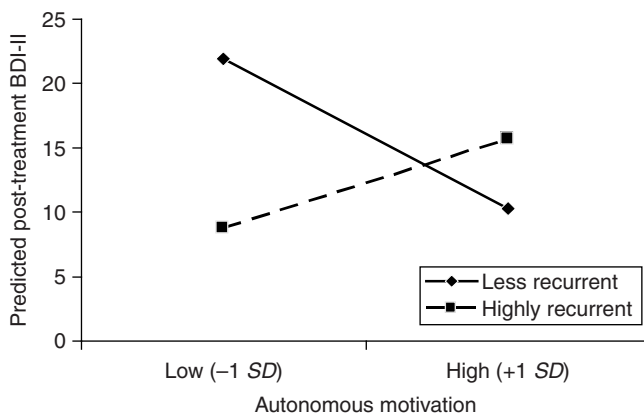


Figure 1. Post-treatment depression predicted by the interaction of depression recurrence and autonomous motivation.

When added to the initial model, both autonomous motivation ($\chi^2(1, N = 71) = 4.48, p < .05$, odds ratio = 2.06) and controlled motivation ($\chi^2(1, N = 71) = 5.69, p < .05$, odds ratio = 0.463) were significant predictors of remission. Patients who were high (+1 *SD*) on autonomous motivation were about twice as likely to achieve remission as those with mean levels of autonomous motivation, whereas those who were high on controlled motivation were about half as likely to achieve remission as those with mean levels of controlled motivation.

In the final step, however, a significant interaction was found between depression recurrence and autonomous motivation. To interpret this interaction, we conducted separate logistic regressions within the highly recurrent and less recurrent groups, using age, marital status, autonomous motivation, and controlled motivation as predictors. The effect of autonomous motivation was not significant within the highly recurrent group, $\chi^2(1, N = 47) = .22, p > .50$, odds ratio = 0.77. However, among the less recurrent patients, autonomous motivation significantly predicted remission, $\chi^2(1, N = 47) = 6.94, p < .01$, odds ratio = 4.74. The odds ratio indicates that, compared to patients with mean scores, patients with elevated scores on autonomous motivation were almost five times as likely to achieve remission.

Discussion

This study examined whether relations between autonomous and controlled motivation and IPT treatment outcome are moderated by depression recurrence. An interaction was found between autonomous motivation and depression recurrence. Patients with less recurrent depression who viewed participation in IPT treatment as a personally meaningful choice they had freely made were more likely to experience positive treatment outcomes assessed using both symptom reduction and remission as criteria. This was not true for those with highly recurrent depression. For this population, autonomous motivation was not related to treatment outcome. These results are interesting given that the level of autonomous motivation, as well as post-treatment severity of depressive symptoms did not differ between patients with less recurrent and highly recurrent depression.

An important question concerns mechanisms: through what processes or mechanisms does autonomous motivation lead to better outcomes for individuals with less recurrent depression but has no effect on treatment outcome for those with highly recurrent depression? For individuals with less recurrent depression, autonomous motivation may activate their sense of agency, enabling them to make better gains in treatment. Studies of autonomous motivation in non-therapy contexts suggest that autonomous motivation may help patients adhere more closely to the prescribed treatment, carry out therapeutic procedures (both in session and as 'homework') more carefully, persistently, and effectively, and persevere in treatment even when it becomes difficult or discouraging (Markland, Ryan, Tobin, & Rollnick, 2005). In addition, autonomously motivated patients may learn more from their experiences in therapy and may more fully internalize their learning. These gains, however, might only be possible for patients who have not suffered from highly recurrent depression.

One might speculate that patients with highly recurrent depression may feel more responsible for the recurrent nature of their depression and, overall, have a lowered sense of competence and self-efficacy. When competence and self-efficacy are low,

autonomous motivation likely loses its beneficial effect. In other words, people who experience repeated episodes of depression may feel more helpless, such that they do not believe that their motivation will affect change. So while they may still believe that treatment is personally meaningful, they do not believe in the beneficial value or their motivation and may, therefore, not participate as actively or as effectively as those with less recurrent depression. Previous research informs us that highly recurrent depression is associated with greater illness characteristics, including greater cognitive and biological impairments compared to less recurrent depression (Basso & Bornstein, 1999; Hollon *et al.*, 2006; Thase *et al.*, 1995). Perhaps, the impairments associated with highly recurrent depression interfere with the positive processes of autonomous motivation such that the benefits of autonomous motivation are not actualized. A final possibility is that because individuals with highly recurrent depression are more submissive and dependent on others (Constantino *et al.*, 2008; Joiner & Coyne, 1999; McCullough, 2000), they may erroneously regard self-directed choice as a negative factor that decreases their chances of support, and may become more reliant on the therapist to take charge in therapy, amplifying their lack of agency and decreasing treatment outcomes. Future research could examine the factors that mediate the relationship between autonomous motivation and treatment outcome depending on depression chronicity, including self-criticism, submissiveness, and agency.

Across both groups, controlled motivation emerged as a significant negative predictor of treatment outcome. Patients who were high on controlled motivation were about half as likely to achieve remission as those with mean levels of controlled motivation. Clearly, when motivation for entering therapy is externally driven or introjective, outcome is compromised. This is an important finding as information about a client's motivation for therapy can provide therapists with a readily available gauge of how well treatment will go. Controlled motivation taps into more submissive reasons for participating in therapy and, therefore, willingness to fully collaborate in treatment might be diminished when individuals engage in therapy for reasons other than finding it an interesting, personally important and vitalizing endeavour. According to Dykman's (1998) goal-oriented model of depression, people differ in their orientation, with some people being more validation seeking and others being more growth seeking. Controlled motivation might parallel the validation seeking construct, with individuals having a more subordinate self-perception and displaying more submissive behaviour. Future research might look into the how controlled motivation affects an individuals goal orientation. Taken together, these results highlight the possible use of motivation theory to inform and enrich therapeutic conceptualizations and interventions in clinical practice, but also point to the importance of modifying interventions based on the chronicity of a client's depression.

A main effect for the therapeutic alliance on treatment outcome was found using logistic regression, with no evidence of an interaction with recurrence. From the perspective of SDT, a strong therapeutic relationship can be viewed as contributing to the satisfaction of the need for relatedness and possibly to the need for competence. As need satisfaction has been linked to better performance in a variety of domains, it is not surprising that it would also be associated with better outcome in psychotherapy. These results are also consistent with studies showing that the quality of the therapeutic alliance predicts treatment outcome (Horvath & Symonds, 1991; Martin *et al.*, 2000). For patients with highly recurrent depression, then, while autonomous motivation had no effect on outcome, the therapeutic alliance did. Our results are consistent with prior research showing that, for individuals with chronic depression, greater change in

depression scores following treatment is associated with greater emphasis on the therapeutic relationship (Vocisano *et al.*, 2004). Vocisano *et al.* found that the single best predictor of psychotherapy outcome for chronically depressed patients was the overall degree of emphasis therapists placed on the patient–therapist relationship, and suggested that for this population the therapeutic alliance is a key ingredient necessary to substantially reduce symptoms of depression. Others have also found that for chronically depressed patients, early alliance predicts subsequent improvement in depressive symptoms (Klein *et al.*, 2003).

Clinically, it makes sense that depressed individuals who have endured repeated episodes of depression are more likely to rely on a therapist's support and the strength of their relationship, given what history has taught them about the nature and course of their depression. The importance of the therapeutic relationship for individuals with highly recurrent depression has been voiced by McCullough (2000) who has argued that chronic and non-chronic forms of depression are qualitatively different in a number of ways and that differential treatment strategies are needed for these two types of depressive disorders. For patients with less recurrent depression, the therapeutic alliance is important for treatment outcome, but does not appear to be as strongly related to outcome as autonomous motivation (the therapeutic alliance doubled the chances of remission; autonomous motivation quintupled the chances of remission). These individuals might have a strong social support network outside of the therapeutic relationship and, therefore, might be less reliant on the client–therapist bond. Indeed, in our sample, those with less recurrent depression were more likely to be married compared to those with highly recurrent depression.

In addition to these interactions, an interesting difference was found between those with highly recurrent depression and those with less recurrent depression: participants with highly recurrent depression were more likely to be on antidepressant medication. This finding is important in light of recent research (for a review, see Fava *et al.*, 2007) indicating that long-term use of antidepressant drugs may worsen treatment outcome and increase vulnerability to depression relapse. An unexpected aspect of our results was that patients with highly recurrent depression were more likely to achieve remission as patients with less recurrent depression. This finding was unexpected as it is inconsistent with previous research that found that those with highly recurrent depression are more treatment resistant (Keller & Boland, 1998) than those with less recurrent depression. Future research is needed to determine whether this result was spurious or, alternatively, whether IPT is indeed more effective with patients with highly recurrent depression compared to patients with less recurrent depression. Taken together, the results from this study underscore the importance of investigating what distinguishes those with highly recurrent depression and those with less recurrent depression and contributes to depression relapse (e.g., Ma & Teasdale, 2004; Solomon *et al.*, 2004; Teasdale *et al.*, 2000; Thase *et al.*, 1995).

Methodological problems and limitations

Some methodological problems and limitations with this research should be highlighted. First, because this research is naturalistic, the sample was highly heterogeneous. This is both a strength, as the results are generalizable, but also a weakness, as the specificity of the results to some forms of depression not known. Second, the data were only collected at one clinic and, therefore, the generalizability to other clinics and other forms of treatment (e.g., CBT) are unknown. Third, the sample

size for the highly recurrent group was small. Fourth, treatment adherence was not formally assessed for the current study. However, all psychotherapists were formally trained in IPT and had been judged by the first or third author to be fully competent in the delivery of this treatment. Finally, we only selected those patients with complete pre- and post-therapy data and, therefore, the results may be generalizable only to those who complete a course of IPT.

Conclusions

Autonomous motivation appears to be a promising candidate to add to the therapeutic relationship in the catalogue of common factors in the treatment of depression. However, one must take into account the number of episodes of depression a patient has suffered. For those with less recurrent depression, both autonomous motivation and the therapeutic alliance have a positive impact on outcome. In contrast, for those with highly recurrent depression autonomous motivation was not related to therapeutic outcome, whereas the therapeutic alliance was related to positive therapeutic outcome. Controlled motivation emerged as a negative predictor of remission, across both groups. These results support the view that highly recurrent depression is qualitatively different from less recurrent depression, and that differential treatment strategies are needed when working with these two distinct populations. Therapists working with patients with less recurrent depression should focus on ways to enhance autonomous motivation, whereas those working with patients with highly recurrent depression need to support and enhance the therapeutic relationship. Future studies could examine the question of whether changes in motivation during treatment occur and, if so, if these changes are related to treatment outcome.

Acknowledgements

This manuscript benefited greatly from the insightful comments of previous reviewers.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications.
- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.). Washington, DC: Author.
- Basso, M. R., & Bornstein, R. A. (1999). Relative memory deficits in recurrent vs. first-episode major depression on a word-list learning task. *Neuropsychology, 13*, 557-563.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Belsher, G., & Costello, C. G. (1988). Relapse after recovery from unipolar depression: A critical review. *Psychological Bulletin, 104*, 84-96.
- Beutler, L., Malik, M. L., Alimohamed, S., Harwood, T. M., Talebi, H., Noble, S., et al. (2004). Therapist variables. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (pp. 227-306). New York: Wiley.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice, 16*, 252-260.
- Constantino, M. J., Manber, R., DeGeorge, J., McBride, C., Ravitz, P., Zuroff, D. C., et al. (2008). Interpersonal styles of chronically depressed outpatients: Profiles and therapeutic change. *Psychotherapy: Theory, Research and Practice, 45*, 491-506.

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- 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.
- Dykman, B. M. (1998). Integrating cognitive and motivational factors in depression: Initial tests of a goal-orientation approach. *Journal of Personality and Social Psychology*, *74*, 139-158.
- Elkin, I., Shea, M. T., Watkins, J. T., Imber, S. D., Sotsky, S. M., Collins, J. F., *et al.* (1989). NIMH treatment of depression collaborative research program: General effectiveness of treatments. *Archives of General Psychiatry*, *46*, 971-982.
- Fava, G. A. (1999). Subclinical symptoms in mood disorders: Pathophysiological and therapeutic interventions. *Psychological Medicine*, *29*, 47-61.
- Fava, G. A., Tomba, E., & Grandi, S. (2007). The road to recovery from depression - don't drive today with yesterday's map. *Psychotherapy and Psychosomatics*, *76*, 260-265.
- 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.
- Greden, J. F. (2001). The burden of recurrent depression: Causes, consequences, and future prospects. *Journal of Clinical Psychiatry*, *62*, 5-9.
- Hollon, S. D., Shelton, R. C., Wisniewski, S., Warden, D., Biggs, M. M., Friedman, E. S., *et al.* (2006). Presenting characteristics of depressed outpatients as a function of recurrence: Preliminary findings from the STAR*D clinical trial. *Journal of Psychiatric Research*, *40*, 59-69.
- Horvath, A. O., & Bedi, R. P. (2002). The alliance. In J. C. Norcross (Ed.), *Psychotherapy relationships that work: Therapist contributions and responsiveness to patients* (pp. 37-69). London: Oxford University Press.
- Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the Working Alliance Inventory. *Journal of Counseling Psychology*, *36*, 223-233.
- Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychology: A meta-analysis. *Journal of Counseling Psychology*, *24*, 240-260.
- Joiner, T. E., & Coyne, J. C. (1999). *The interactional nature of depression*. Washington, DC: American Psychological Association.
- Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology*, *90*, 257-268.
- Keller, M. B., & Boland, R. J. (1998). Implications of failing to achieve successful long-term maintenance treatment of recurrent unipolar major depression. *Biological Psychiatry*, *44*, 348-360.
- Klein, D. N., Schwartz, J. E., Santiago, N. J., Vivian, D., Vocisano, C., Castonguay, L. G., *et al.* (2003). Therapeutic alliance in depression treatment: Controlling for prior change and patient characteristics. *Journal of Consulting and Clinical Psychology*, *71*, 997-1006.
- Klerman, G. L., & Weissman, M. M. (1992). The course, morbidity, and costs of depression. *Archives of General Psychiatry*, *49*, 831-834.
- Koestner, R., Otis, N., Powers, T., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation and goal progress. *Journal of Personality*, *76*, 1201-1230.
- Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, *72*, 31-40.
- Markland, D., Ryan, R. M., Tobin, V. J., & Rollnick, S. (2005). Motivational interviewing and self-determination theory. *Journal of Social and Clinical Psychology*, *24*(6), 811-831.
- Martin, D. J., Garske, J. P., & David, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *68*, 438-450.
- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do implicit and self-attributed motives differ? *Psychological Review*, *96*, 690-702.

- McCullough, J. P., Jr. (2000). *Treatment for chronic depression: Cognitive behavioral analysis system of psychotherapy (CBASP)*. New York: Guilford Press.
- 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*(2), 193-209.
- Nezu, A. M., Nezu, C. M., McClure, K. S., & Zwick, M. L. (2002). Assessment of depression. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (pp.61-85). New York: Guilford Press.
- 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*(2), 414-435.
- Rush, A. J., Trivedi, M. H., Wisniewski, S. R., Nierenberg, A. A., Stewart, J. W., Warden, D., et al. (2006). Acute and longer-term outcomes in depressed outpatients requiring one or several treatment steps. *American Journal of Psychiatry, 163*, 1905-1917.
- 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., Plant, R. W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement, and dropout. *Addictive Behaviors, 20*(3), 279-297.
- Safran, J. D., & Muran, J. C. (2000). *Negotiating the therapeutic alliance: A relational treatment guide*. New York: Guilford Press.
- Safran, J. D., & Muran, J. C. (2006). Has the concept of the therapeutic alliance outlived its usefulness? *Psychotherapy: Theory, Research, Practice, Training, 43*, 286-291.
- SAS Institute (2004). *SAS/STAT user's guide* (Version 9). Cary, NC: Author.
- Solomon, D. A., Leon, A. C., Endicott, J., Mueller, T. I., Coryell, W., Shea, M. T., et al. (2004). Psychosocial impairment and recurrence of major depression. *Comprehensive Psychiatry, 45*, 423-430.
- Teasdale, J. D., Segal, Z. V., Williams, J., Mark, G., Ridgeway, V. A., Soulsby, J. M., et al. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology, 68*, 615-623.
- Thase, M. E., Kupfer, D. J., Buysse, D. J., & Ellen, F. (1995). Electroencephalographic sleep profiles in single-episode and recurrent unipolar forms of major depression: I. Comparison during acute depressive states. *Biological Psychiatry, 38*, 506-575.
- Vocisano, C., Klein, D. N., Arnow, B., Rivera, C., Blalock, J. A., Rothbaum, B., et al. (2004). Therapist variables that predict symptom change in psychotherapy with chronically depressed outpatients. *Psychotherapy: Theory, Research, Practice, Training, 41*, 255-265.
- Wampold, B. E. (2001). *The great psychotherapy debate: Models, methods, findings*. Mahwah, NJ: Erlbaum.
- Wampold, B. E., Mondin, G. W., Moody, M., Stich, F., Benson, K., & Ahn, H. (1997). A meta-analysis of outcome studies comparing bona fide psychotherapies: Empirically, 'all must have prizes'. *Psychological Bulletin, 122*, 203-215.
- 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*(10), 1644-1651.
- Williams, G. C., Gagné, M., Ryan, R. M., & Deci, E. L. (2001). *Facilitating autonomous motivation for smoking cessation*. Unpublished manuscript, University of Rochester.
- 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.

- Williams, G. C., McGregor, H. A., Zeldman, H. A., Freedman, Z. R., & Deci, E. L. (2004). Testing a self-determination theory process model for promoting glycemic control through diabetes self-management. *Health Psychology, 23*, 58-66.
- Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychology, 17*, 269-276.
- Zeldman, A., Ryan, R. M., & Fiscella, K. (2004). Client motivation, autonomy support and entity beliefs: Their role in methadone maintenance treatment. *Journal of Social and Clinical Psychology, 23*, 675-696.
- Zuroff, D. C., & Blatt, S. J. (2006). The therapeutic relationship in the brief treatment of depression: Contributions to clinical improvement and enhanced adaptive capacities. *Journal of Consulting and Clinical Psychology, 74*, 130-140.
- Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., Marshal, M., & Bagby, R. M. (2007). Autonomous motivation for therapy: A new non-specific predictor of outcome in the brief treatment of depression. *Psychotherapy Research, 17*, 137-148.
- Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., & Ravitz, P. (2005). [Responses to the ACMTQ of depressed outpatients seen in an Interpersonal Therapy Clinic]. Unpublished raw data.

Received 16 October 2008; revised version received 6 October 2009