

Comparison of Compensation and Capitalization Models When Treating Suicidality in Young Adults

LaRicka R. Wingate, Kimberly A. Van Orden,
Thomas E. Joiner Jr., and Foluso M. Williams
Florida State University

M. David Rudd
Baylor University

The current study examined compensation and capitalization treatment models with specific reference to problem-solving appraisal and problem-solving treatment of suicidal behavior (M. D. Rudd, T. Joiner, & M. H. Rajab, 2000). A sample of 98 young adults (mean age = 22), who had recently attempted suicide or ideated about suicide to the degree that they came to clinical attention, were randomly assigned to either problem-solving or control treatment. Participants with poorer problem-solving appraisal at baseline responded better than did participants with greater problem-solving appraisal to problem-solving treatment at 6-month follow-up, as would be predicted by the compensation model. Results suggest that treatment of suicidality for individuals with problem-solving skill deficits may be most effective by targeting these deficits rather than capitalizing on strengths.

Keywords: suicide, compensation, capitalization, problem solving, strengths

A capitalization treatment model focuses on enhancing strengths, whereas a compensation treatment model focuses on remediating weaknesses. Each model makes differential predictions about groups most likely to benefit from skills-focused treatment: A compensation model predicts that individuals with the greatest skills deficits will show the largest therapeutic improvement (i.e., therapy directly remediates weaknesses), whereas a capitalization model predicts that individuals with the least amount of skills deficits will show the greatest improvement (i.e., therapy elicits and draws on strengths; Snow, 1991). Despite the potential influence of both the capitalization and compensation models, there has been only a modest amount of work on them in relation to the treatment of depression and little or no work in relation to the treatment of suicidal behavior. To our knowledge, there are no specific treatments for depression or suicidal behaviors that clearly represent the capitalization model. In contrast, various forms of therapy that aim to compensate for an area of deficiency have demonstrated success, including dialectical behavior therapy (Linehan, 1993) for the treatment of borderline personality disorder and both interpersonal psychotherapy (IPT) and cognitive-behavioral therapy (CBT) for the treatment of depression (e.g., Beck, Rush, Shaw, & Emery, 1979; Klerman, Weissman, Rounsaville, & Chevron, 1984). Of the limited research that has been done on the compensation model, much has focused on depression, one of the most significant risk factors for suicidality.

One of the specific weaknesses targeted in CBT is the presence of distorted and maladaptive cognitions (Beck et al., 1979). Insofar

as the theory of CBT focuses on identifying and correcting cognitive distortions and dysfunctions, it seems most compatible with a compensation model, which would predict that patients with more distorted or maladaptive cognitions should improve most with a treatment directly targeting those problems. However, treatment outcome studies of depression often suggest more of a capitalization effect. Studies reviewed by Rude and Rehm (1991) suggest that depressed patients with fewer cognitive deficits fare better than do those with more cognitive deficits when treated in the CBT model (see also Hamilton & Dobson, 2002; Simons, Gordon, Monroe, & Thase, 1995; Sotsky et al., 1991). These results may not reflect a capitalization effect because individuals with high levels of dysfunctional attitudes could be expected to do poorly on most treatments. However, Sotsky et al. (1991) examined the interaction between type of treatment (i.e., CBT and IPT) and level of dysfunctional attitudes as a predictor of treatment response. They found that low levels of dysfunctional attitudes predicted superior treatment response (compared with placebo) only for patients who received CBT, not IPT. Thus, low levels of dysfunctional attitudes may be beneficial only when paired with CBT, making it unlikely that level of dysfunctional attitudes is a prognostic indicator across most treatments. Rather, we suggest that treatments for depression are often conceptualized within a compensation model, yet the available data fit better with a capitalization model.

Rudd et al. (2000) suggest that successful treatment of suicidality should target specific skill deficits, such as emotion regulation and poor distress tolerance, thus conceptualizing treatment within a compensation model framework. The purpose of the current study was to examine both the compensation and capitalization models, with specific reference to problem-solving appraisal (i.e., an individual's assessment of his or her personal problem-solving abilities; Heppner & Baker, 1997) and problem-solving treatment of suicidal behavior (Rudd et al., 2000). We examined the relations between two types of treatment (problem solving vs. treatment as usual [TAU]), pretreatment problem-

LaRicka R. Wingate, Kimberly A. Van Orden, Thomas E. Joiner Jr., and Foluso M. Williams, Department of Psychology, Florida State University; M. David Rudd, Department of Psychology and Neuroscience, Baylor University.

This research was supported in part by a fellowship from the John Simon Guggenheim Memorial Foundation.

Correspondence concerning this article should be addressed to Thomas E. Joiner Jr., Department of Psychology, Florida State University, Tallahassee, FL 32306-1270. E-mail: joiner@psy.fsu.edu

solving appraisal level, and magnitude of treatment response (i.e., decreased suicidality). Following Rudd et al. (2000), we predicted compensation effects—a risky prediction given past work on depression (e.g., Rude & Rehm, 1991). Although past research with depression seems most consistent with a capitalization framework, we hypothesized that a compensation model will best fit problem-solving treatment effects for suicidality because problem-solving treatment of suicidality involves teaching new skills—and it is the absence of such skills that maintains chronic suicidality, according to Rudd et al. (2000). Specifically, we predicted a significant interaction between type of treatment and pretreatment level of problem-solving appraisal, such that those who both had weaker perceived problem-solving skills and received problem-solving treatment would benefit most from treatment. To our knowledge the current study is the first to examine both the capitalization and compensation models in relation to suicidality as well as to problem-solving appraisal and treatment.

Method

Participants

Participants were 98 individuals who had recently attempted suicide or ideated about suicide to the degree that they came to clinical attention and were available for follow-up at 6 months.¹ Participants were evaluated at intake prior to entry into an efficacy study on a time-limited problem-solving treatment for suicidal young adults (Rudd et al., 1996). Participants were referred from two outpatient clinics, an inpatient facility, and an emergency room, all affiliated with a major U.S. Army Medical Center. All patients received rigorous treatment, consisting of either the experimental problem-solving treatment or the control treatment (i.e., TAU). Patients were randomly assigned to either the experimental or the control treatment.²

Approximately 33% of the sample attempted suicide prior to study entry (32 of 98 participants). Thus, approximately two thirds of the sample were ideators, and one third were attempters. In the experimental treatment group, 40% of participants attempted suicide prior to study entry (22 of 55), and 23% of participants in the control treatment attempted suicide prior to study entry (10 of 43). The difference between treatment groups on number of previous suicide attempts was nonsignificant, Welch statistic (1, 94.985) = 3.23, *ns*. During the follow-up period, 3 participants attempted suicide: 1 from the control treatment and 2 from the experimental treatment.³ At entry into the study, 37% of participants met *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R*; American Psychiatric Association, 1987) criteria for major depressive disorder, 20% met criteria for bipolar disorder, and 40% of participants met criteria for an anxiety disorder.⁴ The percentages of participants on psychotropic medications were comparable for the two treatment conditions (28% experimental and 23% control).

Mean age for the sample was 22 years (*SD* = 2.5 years). The gender distribution (82% men, 18% women for the total sample; 86% men, 14% women for experimental; and 78% men, 22% women for control) is common in military medical settings. Most participants were Caucasian (62% for the total sample; 60% experimental, 65% control); 23% were African American (29% experimental, 14% control), 10% were Hispanic (9% experimental, 12% control), and the remainder were classified as other. Attrition from baseline to follow-up was substantial, largely due to of the high-risk nature of the sample and to military reassignments and retirements. Those who did not return had significantly more suicidal symptoms at baseline than did those who returned (correlation between attrition status and suicidality scores was .16, *p* < .05).

Procedures

Upon referral to the study, participants reviewed and signed a statement of informed consent, detailing the Human Subjects Committee approval as

well as the purpose, procedures, and goals of the study. All assessments were conducted by clinical staff (two licensed psychologists, three licensed master's-level professionals, and one advanced-level doctoral student) prior to entry into the treatment study, at intake, and at follow-up. All staff were thoroughly trained and carefully monitored (see Rudd et al., 1996, for more information on procedures). Our main focus was on treatment type (experimental or control), problem-solving appraisal, and treatment response. From the larger study (Rudd et al., 1996), the present effort is the only one to examine the capitalization versus compensation question.

Measures

Problem-Solving Inventory (Form B; PSI; Heppner, 1988). The PSI is a 32-item self-report measure of problem-solving attitudes, including problem-solving confidence, tendencies to approach or avoid problems, and sense of personal control. The PSI measures individuals' beliefs about their level of problem-solving abilities, which "seems to be substantially associated with problem-solving performance" (Heppner, Witty, & Dixon, 2004, p. 352). We used the scale total score, assessed at baseline, in the current study. Past work has demonstrated good reliability (e.g., coefficient alpha ranged from .72 to .90) and adequate validity (Dixon, Heppner, Burnett, & Anderson, 1993; Heppner, 1988). For the current study, alpha for the total scale was .93. Scores on this inventory are such that high scores indicate perceived problem-solving deficits.

¹ Our sample includes only those participants with complete data at the 6-month follow-up. Rudd et al. (1996) reported that 302 participants entered the study (181 in the experimental treatment, 121 in TAU). Two hundred sixty-four participants completed treatment (143 in the experimental treatment, 121 in TAU). One hundred thirty participants were available for the 6-month follow-up. For the analyses discussed here, only those participants who completed all measures used in our main analyses were included. Exclusion criteria for entry into the study were substance dependence or chronic abuse necessitating separate treatment; a psychotic component to the patient's presentation or a diagnosable thought disorder; and a personality disorder of adequate severity to render outpatient group participation (i.e., the problem-solving treatment) ineffective, disruptive, or inappropriate.

² Because a group format was used for the experimental treatment, a critical mass of patients was needed in the experimental group before treatment could begin. Consequently, randomization involved disproportionate assignment rates to each condition. Materials detailing complete randomization procedures along with semiannual quality assurance reports verifying randomization can be obtained from M. David Rudd. In addition, this group format made it impossible for participants to begin treatment immediately upon entrance into the study. It took approximately 2–3 weeks to reach the critical mass needed to begin the group treatment; however, to standardize the time before initiation of treatment, we set the time interval to 1 month for all participants. Interim monitoring of participants took place during this period: Other than brief inpatient stays, active treatments were not provided to participants in either treatment group in the time between entrance into the study and the treatment phase.

³ Study protocol for handling imminent suicide risk involved immediate referral for evaluation for hospitalization, with the individual being accompanied through the process (if transportation to the emergency room was necessary). Clinical supervisors were always notified or consulted prior to the patient being evaluated for admission.

⁴ Treatment groups did not differ with respect to participant diagnoses: For major depressive disorder, 22% in the experimental treatment and 15% in the control treatment met criteria (Pearson χ^2 = .113, *ns*). For bipolar disorder, 11% in the experimental treatment met criteria, and 9% in the control treatment met criteria (Pearson χ^2 = .013, *ns*). For an anxiety disorder, 23% in the experimental treatment and 17% in the control treatment met criteria (Pearson χ^2 = .002, *ns*).

Modified Scale for Suicidal Ideation (MSSI; Miller, Norman, Bishop, & Dow, 1986). The MSSI is an 18-item semistructured interview that is a modified version of Beck, Kovacs, and Weissman's (1979) Scale for Suicidal Ideation.⁵ Items cover such topics as wish to die; intensity, frequency, and duration of suicidal ideation; suicide plans; and writing about suicide. Each MSSI item was rated on a scale of 0 to 3; overall scale scores thus may range from 0 to 54. Miller et al. (1986) have reported reliability coefficients (e.g., coefficient $\alpha = .94$) and construct validity data. The MSSI was administered at baseline and 6-month follow-up.

Treatment Conditions

The problem-solving treatment was an outpatient, structured, time-limited group treatment that utilized a day hospital format: Patients spent approximately 9 hr per day at the treatment facility for 2 weeks. A disproportionate amount of time was dedicated to the problem-solving part of treatment (i.e., 3.5 hr per day). This treatment was set up within a problem-solving paradigm targeting skill development, social functioning, and adaptive coping. The treatment included a traditional experiential-affective group, psychoeducational classes, and an extended problem-solving group.⁶ Some participants (21%) in the experimental condition required hospitalization before beginning the problem-solving intervention. The average length of inpatient stay was slightly over 3 days for this group.

The TAU condition routinely consisted of a combination of crisis management, inpatient hospitalization, antidepressant medications, and various forms of outpatient psychotherapy. The inpatient unit was staffed with board-certified psychiatrists, whereas outpatient care was conducted by doctoral- and master's-level providers, entirely comparable with the experimental treatment. Inpatient stays varied in relation to the clinical aspects of each individual case and lasted an average of approximately 1 week. Outpatient treatment varied depending on the provider's theoretical orientation and frequently involved both individual and group psychotherapy and psychiatric medications (most often antidepressants). Treatment groups for TAU included time-limited stress-management groups and process-oriented support groups. TAU participants were potentially exposed to treatments with problem-solving components, depending on the provider's theoretical orientation and the format of treatment (i.e., group or individual).⁷ Ongoing treatment was not provided for participants in either condition during the follow-up period; however, participants were not restricted from accessing routinely available community services when needed or indicated. The treatment variable was coded such that those who received the problem-solving treatment were assigned a 1, and those who received TAU were assigned a 0.

Results

Means, standard deviations, standard errors, confidence intervals, and correlations for all variables of interest are presented in Table 1. As expected, baseline and follow-up suicidal symptom scores were positively correlated ($r = .32, p < .01$). In addition, a positive correlation was noted between baseline suicidal symptom scores and problem-solving appraisal ($r = .49, p < .01$), indicating that those who reported more suicidal symptoms also reported more problem-solving deficits. Descriptive data for demographic and pretreatment variables of interest for the problem-solving and control groups are presented in Table 2. Four one-way analyses of variance (and one chi-square for gender) were run to test mean differences between treatment groups. Using a probability value of .025 to control for Type I error, we found that all mean differences on demographic and pretreatment variables were nonsignificant.

To examine compensation and capitalization hypotheses, we constructed a regression equation with 6-month follow-up MSSI suicidality symptom scores entered as the dependent variable. Baseline MSSI suicidality symptom scores were entered into the

Table 1
Means, Standard Deviations, Standard Errors of the Mean, Confidence Intervals (CIs), and Bivariate Correlations for Variables of Interest

Variable	1	2	3
1. Baseline MSSI	—		
2. Problem-solving ability	0.49**	—	
3. Follow-up MSSI	0.32**	0.11	—
<i>N</i>	98	98	98
<i>M</i>	3.90	94.87	4.09
<i>SD</i>	8.02	23.57	9.04
<i>SEM</i>	0.81	2.38	0.91
95% CI	2.30–5.50	90.16–99.58	2.30–5.89

Note. Suicidality scores at baseline are perhaps lower than would be expected for a treatment outcome study on suicidality (range at baseline = 0–36; range at follow-up = 0–40). However, baseline scores were obtained at the start of treatment, which was approximately 1 month after entrance into the treatment study, during which time many suicidal crises may have ended. When entering into the study, 84% of participants had clinically significant suicidality scores (i.e., scores of over 11 on the MSSI; range = 3–39). MSSI = Modified Scale for Suicidal Ideation.

** $p < .01$.

regression equation, thereby creating residual change scores in treatment response from baseline to follow-up (see Cohen & Cohen, 1983). Problem-solving appraisal and treatment condition were entered as the second step. Last, the interaction term for treatment condition and problem-solving appraisal was entered as a predictor. If the effect of a particular treatment on suicidal symptoms is dependent upon the level of self-appraised problem-solving abilities, then the interaction term should emerge as a significant predictor in the regression equation.

The general pattern of findings can be seen in Table 3. The interaction between type of treatment (problem solving or TAU) and level of baseline self-appraised problem-solving skills significantly predicted suicidality at the 6-month follow-up, such that participants with poorer appraised problem-solving abilities at baseline responded significantly better than others to problem-solving treatment at follow-up, $pr = -.26$, 95% confidence interval (CI) = $-.44$ – $.06$, $t(93) = -2.57$, $p < .05$. The total model accounted for 17.5% of the variance in suicidality at follow-up. Adding the interaction of baseline problem-solving appraisal and type of treatment to the model in Step 3 accounted for 5% of the variance, with an associated f^2 effect size of .07—a small to medium effect (Cohen, 1988).

⁵ The first four items have been designated as screening items to identify those whose suicidal ideation is severe enough to warrant administration of the entire scale. All participants in the present sample were administered the entire scale, as all experienced clinically significant levels of suicidality (thus their referral to the study).

⁶ For further information on the content of the problem-solving treatment, see Rudd et al. (1996) and Joiner, Voelz, and Rudd (2001).

⁷ Although a fully standardized control condition would allow for the cleanest interpretations of our results, Rudd et al. (1996) reported that the choice of TAU as the control condition was guided by the ethical and practical constraints for the design of a control condition in the treatment of suicidality and that this decision is consistent with other studies of suicidality in the literature (e.g., Linehan, Armstrong, Suarez, Allmon, & Heard, 1991).

Table 2
Means, Standard Deviations, Standard Errors of the Mean, and Confidence Intervals (CIs) for
Demographic and Baseline Variables by Treatment Group

Variable	Experimental				Treatment as usual			
	<i>M</i>	<i>SD</i>	<i>SEM</i>	95% CI	<i>M</i>	<i>SD</i>	<i>SEM</i>	95% CI
Age	22.24	2.44	0.34	21.56–23.91	22.33	2.61	0.38	21.56–23.09
BDI ^a	9.91	9.59	1.31	7.30–12.52	8.81	9.53	1.50	5.84–11.77
PSI	99.16	23.57	3.13	92.96–105.37	89.37	23.48	3.54	82.36–96.39
MSSI	4.44	8.96	1.08	2.28–6.59	3.21	6.68	1.23	0.78–5.64

Note. Experimental treatment group *N* = 55 (men, *n* = 43, 78%; women, *n* = 12, 22%). Treatment-as-usual group *N* = 43 (men, *n* = 37, 86%; women, *n* = 6, 14%). PSI = Problem-Solving Inventory; MSSI = Modified Scale for Suicidal Ideation.

^a Beck Depression Inventory (BDI) scores were not used in our main analyses, and as a result, missing data for the BDI did not exclude participants from our main analyses. Fifty-three participants from the problem-solving group were included in the mean for depression at baseline, and 41 participants from the treatment-as-usual group were included in the mean for depression at baseline.

To further examine the form of this interaction, we plotted the regression line with follow-up suicidality scores as the dependent variable separately for individuals in the two treatment conditions at high, medium, and low levels of baseline self-appraised problem-solving abilities (i.e., one standard deviation below the mean problem-solving score, the mean problem-solving score, and one standard deviation above the mean problem-solving score, respectively). As depicted in Figure 1, at low baseline levels of the PSI (i.e., high self-appraised problem-solving abilities), individuals in TAU benefited most from treatment (i.e., experienced the lowest levels of suicidality at the 6-month follow-up). The mean suicidality score for TAU was 6.53 points lower than the mean score for problem-solving treatment at a high level of problem-solving abilities, $B = 6.53$, 95% CI = 1.67–11.39, $t(93) = 2.68$, $p < .01$. In contrast, at high baseline levels of the PSI (i.e., low self-appraised problem-solving abilities), individuals in the problem-solving condition benefited most from treatment. The mean suicidality score for problem-solving treatment was 2.7 points lower than the mean score for TAU at a low level of problem-solving abilities, although this difference did not reach statistical significance, $B = -2.70$, 95% CI = -7.81–2.41, $t(93) = -1.05$, *ns*. Significance tests of the simple slopes for the simple regression lines representing problem-solving treatment and TAU indicated that the simple slope for the TAU group did not reach significance, $B = 0.07$, 95% CI = -0.05–0.19, $t(93) = 1.20$, *ns*, whereas the simple slope for the problem-solving group did reach significance, $B = -0.13$, 95% CI = 0.02–0.24, $t(93) = -2.26$, $p < .05$. The totality of findings (i.e., significant interaction term, cross-over pattern in Figure 1, significant simple slope) suggests compensation effects.

Discussion

Our results support a compensation model for the treatment of suicidality: Individuals with poorer self-appraised problem-solving abilities at baseline benefited most from problem-solving treatment, whereas individuals with stronger self-appraised problem-solving abilities benefited most from treatment without a focus on problem-solving skills (i.e., TAU). This is an intriguing result given the fact that results from much of the current literature for depression appear to support the capitalization model (e.g., Rude & Rehm, 1991).

These findings raise questions about the relation between depression and suicide.⁸ Many theories of suicidality are extensions of depression theories, based on the assumption that suicide is an extreme manifestation of depression (see Rudd et al., 2000, for a discussion). An example of this type of suicide theory is the hopelessness theory of suicidality (e.g., Abramson et al., 2000), which extends the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989) to the domain of suicidality. The theory posits that suicidality, as a symptom of hopelessness depression, results from the causal chain in the hopelessness model just like any other symptom. This analysis would suggest that treatments for depression and suicide should have similar mechanisms. Our results are not fully compatible with this analysis and suggest instead that although highly related, depression and suicidality are separable constructs possibly involving differential treatment processes and mechanisms.⁹ Future investigations of potential moderators of compensation or capitalization effects could further

⁸ Although we provide a theoretical explanation, it is also possible that methodological differences such as treatment characteristics could account for differential compensation and capitalization effects between studies of depression and our study of suicidality.

⁹ It is also possible that different symptoms of depression may respond to different treatment interventions. Perhaps the studies discussed earlier (e.g., Simons et al., 1995) targeted components of depression that best fit a capitalization treatment model, whereas the study described here targeted a component of depression (i.e., suicidality) that best fits a compensation model. It is also important to note whether studies that found capitalization effects for depression excluded individuals with suicidal symptoms; if so, then these differential results could be due to different characteristics of the samples. Simons et al. (1995) did not report suicidality as an exclusion criteria and did not report frequency of suicidal symptoms experienced by subjects during the study, so it is difficult to ascertain the level of suicidality in this sample; however, they did report that 1 subject withdrew from the study because of hospitalization for a suicide attempt, suggesting that not all suicidality was screened out of this study. Sotsky et al. (1991) reported results from the National Institute of Mental Health Treatment of Depression Collaborative Research Program, in which “active suicidal potential” was an exclusion criteria (Elkin, Parloff, Hadley, & Autry, 1985, p. 310). Further research explicitly comparing compensation and capitalization models for treatments of both depression and suicidality is needed to control for possible methodological differences and to carefully document any differential sample characteristics.

Table 3
Hierarchical Multiple Regression Equation Predicting Suicidal Symptoms at Follow-Up

Step and predictor	<i>F</i>	<i>df</i>	<i>t</i>	<i>df</i>	Partial <i>r</i>
1	10.67**	1, 96			
Baseline MSSI			3.27**	96	.32
2	4.12**	3, 94			
PS appraisal			−0.75	94	−.08
Treatment condition			1.20	94	.12
3	4.92**	4, 93			
PS Appraisal × Treatment Condition			−2.57*	93	−.26

Note. *t* values are for the predictor in each step. MSSI = Modified Scale for Suicidal Ideation; PS = problem-solving.

p* < .05. *p* < .01.

clarify this question. For example, might the presence of suicidality moderate treatment effects for Axis I disorders (such as depression) such that type of effective treatment for the disorder (i.e., capitalization or compensation) may depend on the presence of suicidality?

Depression and suicidality commonly co-occur, which leaves clinicians in a conundrum: If treatments for depression may be most effective by capitalizing on strengths, whereas treatments for suicidality may be most effective by compensating for weaknesses, how should a treatment plan be formulated for a depressed client experiencing suicidality? If suicidality is a primary aspect of a client's symptomatic presentation, then best practice and safety considerations dictate that those symptoms be addressed first. However, in the absence of a suicidal crisis, we suggest targeting a client's *DSM*-based diagnosis, such as depression (with a depression-based treatment), unless suicidal symptoms are the primary feature or theme of the client's presenting problem. For clients with low levels of problem-solving abilities who are in suicidal crises (or for whom the symptomatic presentation revolves around suicidality), problem-solving treatment may be an effective method to compensate for skill deficits and thereby reduce suicidality.

This study suggests that treatment for suicidal behavior may be most effective by remediating weaknesses—in this case, skill deficits in problem solving. Because we measured self-appraisal of problem-solving skills (rather than directly assessing skills), the question arises as to whether the weakness, which was presumably compensated for by the experimental treatment, involved (a) actual problem-solving skill deficits or (b) perceptions of deficits in problem-solving skills. If the PSI only captured the latter construct (i.e., participants do not have actual problem-solving skill deficits), then the skill deficit that moderated treatment effects in this study might best be described as an inability to accurately perceive one's problem-solving abilities. However, we suggest that actual problem-solving deficits likely accompany the perception that one is a poor problem solver. In fact, Heppner and Baker (1997) posited that problem solving is a multifaceted construct and that problem-solving appraisal is one component of this construct, along with type of coping patterns, cognitive processes, and decision-making skills. Thus, the PSI may be tapping participants' repertoire of actual problem-solving skills, though it may not measure the entire repertoire. Heppner and Baker presented behavioral correlates of low scores on the PSI (i.e., positive perceptions of problem-solving skills), including effective use of helping

resources, goal-directed coping, and rational decision making. However, we note that the relationship between problem-solving appraisal scores and actual skill deficits for individuals in treatment of suicidality is an empirical question and awaits future research.

Certain characteristics of the study design present limitations. The use of TAU as a comparison group instead of a standardized control condition, although an ethical mandate, leaves open the possibility that treatment differences other than the problem-solving component can account for differential treatment outcomes. In addition, although ongoing treatment was not provided during the follow-up period, it is possible that participants in the experimental group were exposed to control components (and vice versa) during the follow-up period by accessing routinely available community services. Finally, participants in the two treatment conditions were not matched on initial level of suicidal symptoms. Although groups did not significantly differ on baseline level of suicidal symptoms, future studies with specific inclusion criteria for suicidality (e.g., MSSI cut-off scores) would allow for greater confidence in compensation effects for problem-solving treatment of suicidality.

Certain characteristics of the sample also present limitations. Because this was a military sample, generalizability may be somewhat limited. The gender ratio of men to women evaluated in the study (4.6:1) may be less representative of a nonmilitary mental health setting. In addition, the findings of this study may not generalize to more severely impaired individuals because of the fact that participants who dropped out of the study endorsed more suicidal symptoms at baseline than did those who remained (though it should be noted that this was a small difference). This may have occurred because those who were more functionally impaired self-selected to terminate treatment.¹⁰ A possibility in interpreting these findings is that in the domain of suicidal behavior, higher functioning individuals may be better at a technique based on compensation because they are more adept at incorporating new skills into already existing behavior. For those who are more impaired, further research can attempt to establish whether the effectiveness of treatment based on capitalization or compensation varies as a function of symptom severity. However, at the present, a compensation model seems to best describe the mech-

¹⁰ For a discussion of help negation in this sample, see Rudd, Joiner, and Rajab (1995).

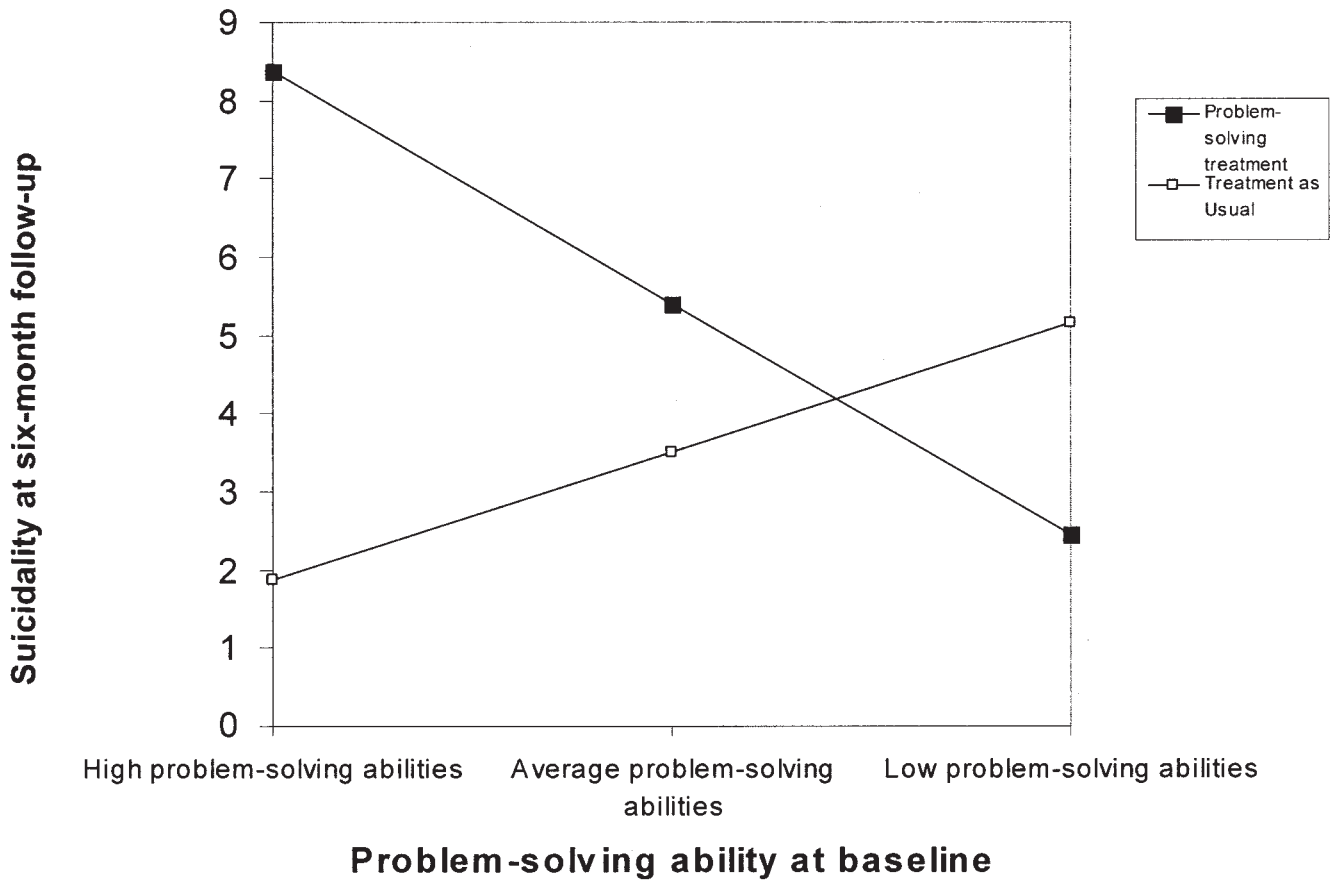


Figure 1. Interaction between treatment conditions and problem-solving appraisal on suicidality at 6-month follow-up.

anism of therapeutic improvement in the treatment of suicidality: When deficiencies in problem-solving skills are present, targeting these skill deficiencies, rather than capitalizing on strengths, seems to be the most effective approach for suicidal individuals.

References

- Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Gibb, B. E., Hankin, B. L., & Cornette, M. M. (2000). The hopelessness theory of suicidality. In T. Joiner & M. D. Rudd (Eds.), *Suicide science* (pp. 17–32). Boston: Kluwer Academic.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, 96, 358–372.
- American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- Beck, A., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: The Scale for Suicidal Ideation. *Journal of Consulting and Clinical Psychology*, 47, 343–352.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression: A treatment manual*. New York: Guilford Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Dixon, W. A., Heppner, P. P., Burnett, J. W., & Anderson, W. P. (1993). Distinguishing among antecedents, concomitants, and consequences of problem-solving appraisal and depressive symptoms. *Journal of Counseling Psychology*, 40, 357–364.
- Elkin, I., Parloff, M. B., Hadley, S. W., & Autry, J. H. (1985). NIMH Treatment of Depression Collaborative Research Program: Background and research plan. *Archives of General Psychiatry*, 42, 305–316.
- Hamilton, K. E., & Dobson, K. S. (2002). Cognitive therapy of depression: Pretreatment patient predictors of outcome. *Clinical Psychology Review*, 22, 875–893.
- Heppner, P. (1988). *Manual for the Problem-Solving Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Heppner, P. P., & Baker, C. E. (1997). Applications of the Problem Solving Inventory. *Measurement & Evaluation in Counseling & Development*, 29, 229–241.
- Heppner, P. P., Witty, T. E., & Dixon, W. A. (2004). Problem-solving appraisal and human adjustment: A review of 20 years of research using the Problem Solving Inventory. *The Counseling Psychologist*, 32, 344–428.
- Joiner, T. E., Jr., Voelz, Z. R., & Rudd, D. M. (2001). For suicidal young adults with comorbid depressive and anxiety disorders, problem-solving treatment may be better than treatment as usual. *Professional Psychology: Research and Practice*, 32, 278–282.
- Klerman, G. L., Weissman, M. M., Rounsaville, B. J., & Chevron, E. S. (1984). *Interpersonal psychotherapy of depression*. New York: Basic Books.
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.
- Linehan, M. M., Armstrong, H., Suarez, A., Allmon, D., & Heard, H.

- (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry*, 48, 1060–1064.
- Miller, I., Norman, W., Bishop, S., & Dow, M. (1986). The Modified Scale for Suicidal Ideation: Reliability and validity. *Journal of Consulting and Clinical Psychology*, 54, 724–725.
- Rudd, M. D., Joiner, T., & Rajab, M. H. (1995). Help negation after acute suicidal crisis. *Journal of Consulting and Clinical Psychology*, 63, 499–503.
- Rudd, M. D., Joiner, T., & Rajab, M. H. (2000). *Treating suicidal behavior: An effective, time-limited approach*. New York: Guilford Press.
- Rudd, M. D., Rajab, M. H., Orman, D., Stulman, D., Joiner, T., & Wayne, D. (1996). Effectiveness of an outpatient intervention targeting suicidal young adults: Preliminary results. *Journal of Consulting and Clinical Psychology*, 64, 179–190.
- Rude, S., & Rehm, L. (1991). Response to treatments for depression: The role of initial status on targeted cognitive and behavioral skills. *Clinical Psychology Review*, 11, 493–514.
- Simons, A., Gordon, J., Monroe, S., & Thase, M. (1995). Toward an integration of psychological, social, and biologic factors in depression: Effects on outcome and course of cognitive therapy. *Journal of Consulting and Clinical Psychology*, 63, 369–377.
- Snow, R. (1991). Aptitude-treatment interaction as a framework for research on individual differences in psychotherapy. *Journal of Consulting and Clinical Psychology*, 59, 205–216.
- Sotsky, S., Glass, D., Shea, M., Pilkonis, P., Collins, J., Elkin, I., et al. (1991). Patient predictors of response to psychotherapy and pharmacotherapy: Findings in the NIMH Treatment of Depression Collaborative Research Program. *American Journal of Psychiatry*, 148, 997–1008.

Received June 10, 2004

Revision received December 28, 2004

Accepted January 11, 2005 ■

Correction to Rice and Harris (1995)

In the article, “Violent Recidivism: Assessing Predictive Validity,” by Marnie E. Rice and Grant T. Harris (*Journal of Consulting and Clinical Psychology*, 1995, Vol. 63, No. 5, pp. 737–748), several errors are present on pp. 738 and 746. The corrections are listed below.

The mean value (reported on p. 738, Receiver Operating Characteristic section, Paragraph 2, Line 13) for the scores of the 427 men who did not fail should be -2.94 , not 2.94 .

The corresponding scores (p. 746, Column 1, Line 14) for the common language effect size (CL) and area should be $.64$ and $.71$, not $.60$ and $.66$.

In Footnote 7 (p. 746, Column 2), Lines 1–3 are inaccurate and should read as follows: “Cohen (1992) also suggests guidelines for the interpretation of correlation (Pearson r) as a measure of effect size. However, Cohen’s guidelines about effect size for correlation hold only when the base. . .”

Lines 10–14 of Footnote 7 should read as follows: “At a base rate of $.5$ (and assuming normal distributions), d is 1.4 and CL (or area) is roughly $.84$. However, as the base rate deviates from $.5$, the values for d and CL rise dramatically.”