

# Social Problem-Solving Therapy for Unipolar Depression: An Initial Dismantling Investigation

Arthur M. Nezu  
Beth Israel Medical Center, New York  
and Mount Sinai School of Medicine, New York

Michael G. Perri  
Fairleigh Dickinson University  
and Franklin D. Roosevelt Veterans Administration Hospital, Montrose, New York

Tests the efficacy of social problem-solving therapy for unipolar depression and examines the relative contribution of training in the problem-orientation component of the overall model. This process involves various beliefs, assumptions, appraisals, and expectations concerning life's problems and one's problem-solving ability. It is conceptually distinct from the remaining four problem-solving components that are specific goal-directed tasks. A dismantling research design, involving 39 depressed Ss, provides findings that indicate problem-solving to be an effective cognitive-behavioral treatment approach for depression, thereby extending previous research. Moreover, the results underscore the importance of including problem-orientation training.

Social problem solving refers to the process by which people discover, create, or identify effective means of coping with stressful events encountered in living (D'Zurilla & Nezu, 1982). A model of unipolar depression based on a problem-solving formulation has recently been articulated that suggests that deficits in problem-solving skills serve as one important vulnerability factor for depression (Nezu, 1987; Nezu, Nezu, & Perri, 1989). When such deficits lead to ineffective coping attempts under high levels of stress (emanating either from major negative life events or from continuous daily problems), depression is likely to occur.

One corollary from this theory suggests that problem-solving training leads to decreases in depressive symptomatology. To date, only two outcome studies provide a direct test of this hypothesis. In one study, Hussian and Lawrence (1981) found that problem-solving therapy was superior to a social reinforcement approach for symptom reduction among a group of institutionalized elderly depressives. In an investigation by Nezu (1986b), subjects who received problem-solving treatment reported significantly lower depression scores than participants in two control conditions.

Although the results of these two studies provide initial support, additional confirming evidence remains critical. Moreover, research is necessary to better understand how problem-solving therapy affects symptom change. Thus, this study assesses the efficacy of problem-solving therapy for unipolar

depression and the relative contribution of the problem-orientation component. A dismantling strategy was used to address these goals by randomly assigning depressed subjects to one of three conditions: (a) problem-solving therapy (PST), (b) abbreviated problem-solving therapy (APST), and (c) wait-list control (WLC).

The problem-orientation process within social problem solving can be described as a set of orienting responses that consists of the immediate cognitive-behavioral-affective reactions of a person when first confronted with a problematic or stressful situation. These responses include a set of beliefs, assumptions, appraisals, and expectations concerning life's problems and one's own general problem-solving ability. The remaining four components of the model (i.e., problem definition and formulation, generation of alternative solutions, decision making, and solution implementation and verification) can be described as a set of cognitive-behavioral *skills* or goal-directed *tasks* that enable a person to solve a particular stressful problem successfully. Conceptually, training in the problem-orientation process is geared to facilitate an individual's motivation both to actually apply the four problem-solving skills and to feel self-efficacious in doing so. If not addressed, a negative problem-solving orientation can lead to negative affect and avoidance motivation that could inhibit or disrupt later problem-solving performance.

As such, the orientation process can be considered as conceptually distinct from the other four problem-solving components (cf. D'Zurilla, 1986). This difference provides one reason for singling out the orientation component for further scrutiny. A second reason involves the discrepant support for problem-solving training observed in the literature regarding other psychological disorders. Studies that find problem-solving training to be ineffective often exclude training in the orientation process, whereas successful training programs include the entire model (Nezu et al., 1989). Therefore, we hypothesized that (a) PST subjects would become less depressed than APST partici-

---

We extend our grateful appreciation to Christine M. Nezu for her helpful comments on earlier drafts of this article, as well as for her suggestions concerning clinical aspects of the treatments conducted in this study.

Correspondence concerning this article should be addressed to Arthur M. Nezu, Department of Psychiatry, Beth Israel Medical Center, 1st Avenue at 16th Street, New York, New York 10003.

pants; (b) such differences would be a function of changes in the problem-orientation variables; and (c) subjects in both treatment conditions would experience less depression at the post-test assessment than those in the WLC group.

## Method

### Subjects

Announcements concerning a university-sponsored depression program were placed in community newspapers to solicit subjects. Interested individuals were required to complete an informed-consent form, the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and a demographic questionnaire. Persons with BDI scores of 20 and above who also indicated a period of at least 4 weeks of a current depressive episode were invited to participate in a 1.5-hr semistructured clinical intake interview and to complete several inventories including a second BDI. These interviews were conducted by pairs of advanced clinical psychology graduate students according to the Schedule of Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978) and under our supervision. This first screening cut resulted in a potential pool of 59 individuals out of an original 98. In addition to diagnostic decisions, interviewers also completed the 17-item version of the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) for each subject. Overall estimates of interrater reliability (kappa values) between raters was found to be .96 at the pretreatment assessment (range of .94 to .98).

Criteria for inclusion in this study involved (a) meeting Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978) for unipolar, major depressive disorder; (b) BDI scores that were consistently 20 or above on both the screening and pretreatment evaluations; and (c) HRSD scores of 18 and above. Kappa values of agreement for the diagnoses ranged between .88 and .94, with a mean of .91. Only subjects who were diagnosed by both interviewers as clinically depressed were actually included in this study.

Exclusion criteria included the presence of mental retardation, psychotic symptomatology, bipolar disorder, active substance abuse, organic brain syndrome, borderline personality features, and current involvement in any form of psychological or drug interventions.

This second screening cut resulted in 43 individuals who met all inclusion/exclusion criteria. All other people were provided with referral information to local mental health facilities. The mean age of this group was 45.76 years ( $SD = 11.42$ ) and the mean number of years of formal education was 15.02 ( $SD = 2.33$ ).

### Measures

Quantitative measures of depression included both the BDI and the HRSD. Subjects' problem solving was assessed by the Problem-Solving Inventory (PSI; Heppner & Petersen, 1982), which is a 32-item self-report measure. Low PSI scores are indicative of behaviors and attitudes that are reflective of self-appraised effective problem-solving ability. Several studies provide data indicating that the PSI has sound reliability and validity properties (cf. Heppner, 1986).

In addition to a total score, the PSI contains three scales that were derived previously through a factor analysis (Heppner & Petersen, 1982): problem-solving confidence (PSC), personal control (PC), and approach-avoidance style (AAS). Review of the specific items of both the PSC and PC scales suggests that they are representative of the problem-orientation component (e.g., "I trust my ability to solve new and difficult problems"). The AAS scale, on the other hand, can be seen as evaluating aspects of the other four problem-solving skills (e.g., "When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas"; "when making a decision,

I weigh the consequences of each alternative and compare them against each other").

The Problem Check List (PCL; Nezu, 1986a), a measure of the frequency of current problems, was included to assess changes in the amount of problems experienced as a function of treatment. The PCL consists of nine areas of living within which problems may occur for the average person (e.g., relationships with spouse, job, finances). Subjects were requested to indicate the frequency of problematic situations that they experienced during the past 2 weeks in each of these nine areas. Test-retest reliability has been estimated to be .62 over a 4-week period, whereas coefficient alpha estimates were estimated to be .73 (Nezu, 1986a).

### Procedure

The 43 subjects were assigned randomly to one of three conditions as described in this section: problem-solving therapy ( $n = 15$ ; 12 women and 3 men); abbreviated problem-solving therapy ( $n = 15$ ; 12 women and 3 men); and a wait-list control ( $n = 13$ ; 11 women and 2 men). Treatment was conducted within four groups (two groups per condition; four pairs of therapists) over 10 weekly sessions, each session lasting approximately 1.5–2 hr in length. Each treatment program was based on separate manuals that were provided to all therapists in the program.

*Problem-solving therapy.*<sup>1</sup> This treatment program was based on the entire social problem-solving training model as described by D'Zurilla and Nezu (1982; Nezu et al., 1989). Training in problem orientation was geared toward providing the subjects with a rational, positive, and constructive set to problems in living and problem solving as a means of coping with them. The goal during this process was to change those attitudes or beliefs that may inhibit or interfere with attempts to engage in the remaining problem-solving tasks. Additionally, subjects were taught (a) to label emotions as cues as a means of identifying the existence of a problem, and (b) to inhibit the tendency to respond automatically to problems and instead engage in the problem-solving process.

Training in the four problem-solving tasks involved teaching subjects to (a) better define and formulate the nature of problems, (b) generate a wide range of alternative solutions, (c) systematically evaluate the potential consequences of a solution and select the most optimal ones to implement, and (d) monitor and evaluate the actual solution outcome after its implementation.

Session 1 involved a general introduction to the program, whereas Sessions 2 and 3 were devoted specifically to the problem-orientation component, and Sessions 4–6 involved didactics and practice in the remaining four problem-solving skills. The last four sessions provided an applied integration of the model, as well as continued practice in the various problem-solving components. Emphasis on the problem-orientation component continued throughout treatment. Additionally, between-sessions, homework assignments, relevant to each step, were included as part of the therapy regimen.

In an attempt to facilitate maximal therapeutic gain for each subject, as well as to encourage attendance, therapists were directed to ensure that the treatment protocol be made relevant to the specific life circumstances of each individual. For example, during each session, application of a given "training lesson" was highlighted for two or three subjects. At the next session, a different subset of two or three members was spotlighted, ensuring that specific individual problems were being addressed and not just hypothetical examples.

*Abbreviated problem-solving therapy.* Members of this condition were provided with an identical treatment program as that of PST subjects with the exception of training in the problem-orientation component. If discussions concerning problem-orientation variables were ini-

<sup>1</sup> A detailed therapist manual for problem-solving treatment for depression is contained in Nezu et al. (1989).

tiated by subjects, therapists were instructed to refrain from providing systematic advice or training in this process.

*Wait-list control.* Subjects in this condition were told that the program, because of limited capacity, was unable to accommodate any more members but that at the end of the 10 weeks, they would be able to receive treatment. To address certain ethical concerns, each WLC member was contacted twice during this period to assess the need for referrals outside of the project, as well as to provide "support." No direct counseling occurred during these telephone contacts.

*Therapists.* The therapists for this program included four pairs of advanced clinical psychology graduate students (all women). Each had prior training in group therapy and received intensive instruction in the respective forms of social problem-solving therapy (i.e., PST vs. APST). Each pair led one treatment group, which resulted in four actual groups being conducted (two PST and two APST groups). We provided weekly supervision to all therapists in order to ensure adherence to the relevant treatment manuals, as well as to aid with difficult clinical issues that arose. To ensure that the therapists were unaware of the purpose and hypotheses of the study, separate supervisory sessions took place.

*Posttreatment and follow-up assessments.* At the end of the 10-week program, all participants were requested to undergo a clinical interview and to complete the BDI, PSI, and PCL measures. During the interview, the HRSD was completed by raters who did not know subjects' assignment to condition. Six months after this posttreatment assessment, all subjects underwent the same procedure. Estimates of interrater reliability (kappa values) for the HRSD were found to be .94 at the posttreatment evaluation and .92 at the follow-up assessment.

To further facilitate attendance at each session, as well as at the posttreatment and follow-up evaluations, a \$50 deposit was required for participation in the program. Portions of each deposit were refunded at each treatment and evaluation session attended.

## Results

### Attrition

Despite attempts to facilitate completion of the program (e.g., \$50 refundable deposit, small group size, "individualized" treatment), by posttreatment, two subjects had dropped out of the study (one per therapy condition). Comparison of pretreatment data indicated no marked differences on any of the measures in comparison with other subjects who completed the program. Additionally, two WLC subjects entered treatment elsewhere and were therefore excluded from any data analysis. This attrition resulted in a total of 39 subjects, with 14 in each treatment condition and 11 in the WLC condition. The following results are based on the data from these 39 subjects.

### Comparison of Pretreatment Data

An initial one-way multivariate analysis of variance (MANOVA), that included various demographic information (e.g., age, years of education, family income) found no significant differences among the three conditions. A second one-way MANOVA, conducted on the screening BDI, pretreatment BDI, HRSD, PSI (three scales), and PCL measures also revealed a lack of significant differences among the three conditions (see Table 1, which contains the means and standard deviations for these measures by condition and assessment period). Results of a  $3 \times 2$  (Treatment Condition  $\times$  Trial) repeated-measures MANOVA found no differences existing between the screening and pretreatment BDI scores. Lastly, a MANOVA (Therapist fac-

tor nested under the Condition factor) was conducted on all pretreatment measures and also revealed a lack of significant differences as a function of the Therapist factor or the Condition  $\times$  Therapist interaction.

### Evaluation of Treatment Rationale and Therapist Competence

At the conclusion of both the first and the tenth sessions, subjects were requested to anonymously complete a questionnaire concerning their reactions to both the treatment rationale and their respective therapists. Specifically, they were asked to rate, using a 7-point Likert-type scale ranging from *disagree very strongly* (1) to *agree very strongly* (7), their level of agreement concerning the following four items: (a) "I believe this treatment program will help (has helped) me to become less depressed"; (b) "I believe that my therapist is (was) competent and can be (has been) effective in helping me to cope better with my problems"; (c) "I agree with the rationale that this program is based upon"; and (d) "Based upon the first session (entire program), I believe that I will be (have been) helped to become less depressed." A series of analyses revealed no significant differences concerning any of these ratings as a function of varying treatments, therapists, or evaluation points. Although these particular ratings are subject to social desirability factors, these findings provide some support for the notion that any consequent differences between conditions could not be attributable to differences concerning subjects' expectations, satisfaction, or perceptions of the competency of their therapists.

### Comparison of Effects Due to Treatment

Further analyses found no differences at posttreatment as a function of differing therapists concerning all measures. Therefore, all subsequent pretreatment and posttest analyses combined data across therapist pairs and included  $3 \times 2$  (Experimental Condition  $\times$  Trial) repeated-measures MANOVAS. Results of these analyses are in Table 2. All individual contrasts were conducted according to the conservative Dunn-Bonferroni procedure in order to minimize family-wise error rates.

*Depression scores.* Results from the analyses concerning both depression measures initially indicated significant main effects for both condition and trial, as well as significant interaction effects. Subsequent individual contrasts showed that PST members reported significantly lower posttreatment depression scores than subjects in both the APST group,  $t(72) = 2.89$  (BDI),  $t(72) = 2.93$  (HRSD), and the WLC condition,  $t(72) = 6.33$  (BDI),  $t(72) = 5.63$  (HRSD) (all  $ps < .01$ ). Further, APST members were less depressed at posttest than the WLC subjects,  $t(72) = 4.09$  (BDI),  $t(72) = 3.38$  (HRSD) (all  $ps < .01$ ). Lastly, subjects in both the PST and APST treatment conditions reported significantly lower posttest, in comparison with pretreatment, BDI scores,  $t(72) = 7.22$ ,  $t(72) = 5.46$ , and HRSD scores,  $t(72) = 7.40$ ,  $t(72) = 5.53$  (all  $ps < .01$ ). No differences were found regarding either depression measure for WLC participants.

*Problem-solving measures.* Initial repeated-measures analyses indicated significant condition and trial main effects, as well as significant Condition  $\times$  Trial interaction effects concerning

Table 1  
Means and Standard Deviations for All Dependent Measures by Condition at Pretreatment, Posttreatment, and Follow-Up Assessments

Measure	Condition					
	PST		APST		WLC	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Beck Depression Inventory						
Screening	26.43 <sub>A,a</sub>	3.92	28.36 <sub>A,a</sub>	6.28	28.18 <sub>A,a</sub>	4.92
Pretreatment	26.00 <sub>A,a</sub>	2.96	27.71 <sub>A,a</sub>	6.43	27.27 <sub>A,a</sub>	4.29
Posttreatment	6.57 <sub>B,a</sub>	3.29	13.00 <sub>B,b</sub>	4.84	24.73 <sub>A,c</sub>	7.76
Follow-up	5.86 <sub>B,a</sub>	4.57	11.43 <sub>B,b</sub>	6.21	—	—
Hamilton Rating Scale for Depression						
Pretreatment	24.07 <sub>A,a</sub>	2.97	25.29 <sub>A,a</sub>	5.51	25.91 <sub>A,a</sub>	4.09
Posttreatment	7.71 <sub>B,a</sub>	4.46	13.07 <sub>B,b</sub>	6.12	21.00 <sub>A,c</sub>	5.46
Follow-up	6.36 <sub>B,a</sub>	3.95	13.50 <sub>B,b</sub>	6.42	—	—
Problem-solving confidence scale (PSI)						
Pretreatment	34.07 <sub>A,a</sub>	7.96	36.78 <sub>A,a</sub>	6.12	36.46 <sub>A,a</sub>	6.85
Posttreatment	21.36 <sub>B,a</sub>	5.18	33.00 <sub>A,b</sub>	4.84	36.09 <sub>A,b</sub>	6.76
Follow-up	20.07 <sub>B,a</sub>	4.97	33.43 <sub>A,b</sub>	7.87	—	—
Personal control scale (PSI)						
Pretreatment	20.36 <sub>A,a</sub>	4.14	19.50 <sub>A,a</sub>	3.93	19.36 <sub>A,a</sub>	3.73
Posttreatment	10.21 <sub>B,a</sub>	3.02	18.00 <sub>A,b</sub>	5.07	18.64 <sub>A,b</sub>	4.52
Follow-up	10.07 <sub>B,a</sub>	3.49	18.07 <sub>A,b</sub>	6.12	—	—
Approach-avoidance style scale (PSI)						
Pretreatment	60.43 <sub>A,a</sub>	10.21	60.50 <sub>A,a</sub>	7.25	62.00 <sub>A,a</sub>	8.79
Posttreatment	46.50 <sub>B,a</sub>	8.60	46.57 <sub>B,a</sub>	5.39	61.00 <sub>A,b</sub>	9.26
Follow-up	44.57 <sub>B,a</sub>	8.79	46.07 <sub>B,a</sub>	9.45	—	—
Problem Check List						
Pretreatment	27.93 <sub>A,a</sub>	8.89	29.64 <sub>A,a</sub>	4.97	31.27 <sub>A,a</sub>	7.85
Posttreatment	14.79 <sub>B,a</sub>	5.16	21.14 <sub>B,b</sub>	7.16	29.82 <sub>A,c</sub>	9.38
Follow-up	13.71 <sub>B,a</sub>	5.33	20.71 <sub>B,b</sub>	7.38	—	—

Note. PST = problem-solving therapy; APST = abbreviated problem-solving therapy; WLC = waiting-list control; PSI = Problem-Solving Inventory. Capital letter subscripts indicate significant differences among means for a particular measure within a condition across differing assessment points (i.e., A, B). Lowercase letter subscripts indicate significant differences among means for a particular measure across conditions within the same testing period (i.e., a, b, c). Last, because of ethical concerns, members of the WLC condition were provided treatment subsequent to the posttest assessment. As such, no follow-up data for these subjects exist.

subjects' scores on both the PSC and PC scales of the PSI. Individual contrasts indicated further that subjects in the PST condition reported significantly lower (note that lower PSI scores are reflective of more effective problem solving) PSC and PC scores at posttreatment than both those in the APST group,  $t(72) = 7.23$  (PSC),  $t(72) = 5.58$  (PC), and the WLC members,  $t(72) = 8.56$  (PSC),  $t(72) = 5.59$  (PC) (all  $ps < .01$ ). However, no significant differences at posttreatment were found between APST and WLC participants on either PSI measure. Additionally, only PST subjects reported significantly lower PSC and PC scores at posttest, in comparison with pretreatment,  $t(72) = 7.89$  (PSC),  $t(72) = 7.15$  (PC) (all  $ps < .01$ ). No pretreatment/posttest differences emerged for APST and WLC subjects concerning either PSI scale.

The repeated-measures MANOVA conducted on the AAS scale initially found a significant Condition  $\times$  Trial interaction, as well as significant condition and trial main effects. Results from the individual contrasts on this PSI scale revealed a somewhat different pattern of results in comparison with the findings

regarding the other two PSI scales. First, whereas differences between posttreatment scores on this scale were found to be significant between PST and WLC subjects,  $t(72) = 6.19$ ,  $p < .01$ , no significant differences emerged concerning posttreatment AAS scores between PST and APST members. Furthermore, APST posttreatment scores on this measure were found to be significantly lower than those reported by WLC subjects,  $t(72) = 6.19$ ,  $p < .01$ . Moreover, contrasts concerning differences between pretest and posttest AAS scores revealed significant differences regarding both PST,  $t(72) = 6.37$ , and APST subjects,  $t(72) = 6.36$  (all  $ps < .01$ ). No significant changes in AAS scores emerged for WLC members.

*Frequency of problems.* Initial analyses revealed a significant Condition  $\times$  Trial interaction for the PCL measure, as well as significant trial and condition main effects. Individual contrasts further indicated that members of the PST condition reported significantly fewer problems at posttreatment than subjects in both the APST,  $t(72) = 3.08$ , and the WLC conditions,  $t(72) = 5.12$ ,  $ps < .01$ . APST participants also reported experiencing

Table 2  
*Multivariate Analysis of Variance F Ratios for 3 × 2*  
*(Condition × Trial) Repeated-Measures (Pretreatment vs.*  
*Posttreatment) Analyses for All Measures*

Effect	Measure					
	BDI	HRSD	PSC	PC	AAS	PCL
Condition <sup>a</sup>	21.65**	11.47**	7.77*	5.09*	3.65*	5.55*
Trial <sup>b</sup>	113.21**	140.29**	66.99**	46.63**	105.30**	45.03**
Condition × Trial <sup>a</sup>	17.91**	11.92**	28.89**	25.92**	19.51**	7.69*

Note. BDI = Beck Depression Inventory; HRSD = Hamilton Rating Scale for Depression; PSC = problem-solving confidence scale; PC = personal control scale; AAS = approach-avoidance style scale; PCL = Problem Check List.

<sup>a</sup>  $df = 2, 36$ . <sup>b</sup>  $df = 1, 36$ .

\*  $p < .01$ . \*\*  $p < .0001$ .

less frequent problems at posttreatment than WLC subjects,  $t(72) = 3.17, p < .01$ . Lastly, members of both the PST and APST treatment conditions reported significantly lower frequencies of problems at posttreatment in comparison with pretreatment,  $t(72) = 4.72, t(72) = 3.31$ , respectively,  $ps < .01$ . The frequency of experienced problems reported by WLC members was essentially unchanged between pretests and posttests.

#### *Analysis of the Clinical Significance of Treatment Effects*

Assessment of the clinical meaningfulness of the treatment effects was conducted next and followed the recommendations of Jacobson, Follette, and Revenstorf (1984). Essentially, they suggested that an individual undergoing treatment can be said to be "recovered" if it can be shown that his or her posttest score on appropriate measures is more likely to belong in a functional group (i.e., nondepressed) than to belong in the dysfunctional population (i.e., clinically depressed group). Psychometrically, they recommended that the criterion be operationally defined as a cutoff point at which the treated subject has a posttest score 2 standard deviations beyond the mean of the dysfunctional population (in this case, the WLC group).<sup>2</sup>

Following this approach, we found that, with regard to the BDI measure, 85.71% of the PST subjects (12 out of 14), 50% of the APST subjects (7 out of 14), and 9.10% of the WLC subjects (1 out of 11) experienced clinically meaningful decreases in depressive symptoms. This difference in the proportion of subjects indicating improvement was found to be significant,  $\chi^2(2, N = 39) = 14.50, p < .001$ .

For the HRSD measure of depression, similar analyses revealed the following rates of improvement: PST = 78.57% (11 out of 14); APST = 50% (7 out of 14); and WLC = 9.10% (1 out of 11). These differences were also found to be significant,  $\chi^2(2, N = 39) = 11.92, p < .01$ .

#### *Follow-Up Analyses*

Because of ethical and clinical concerns, the 11 members of the original WLC condition were provided with treatment

(PST) at the end of the initial 10 weeks. Therefore, follow-up analyses include only those subjects in the PST and APST conditions. All analyses conducted on follow-up data involved  $2 \times 2$  (Condition × Trial) repeated-measures MANOVAS; individual contrasts were also conducted according to the Dunn-Bonferroni procedure. In general, results of these analyses indicate that the overall treatment effects for both the PST and APST conditions were maintained over a 6-month period, because neither group reported any scores reflective of substantial change (either better or worse) during this period.<sup>3</sup>

#### Discussion

Before the implications of these findings are discussed, certain limitations of this study need to be highlighted. First, although multiple measures of depressive symptomatology were included, this investigation relied solely on self-report evaluations of problem solving. Future research should endeavor to include measures of external validation (i.e., effects of increased problem-solving efficacy on subjects' lives, such as increases in satisfaction with interpersonal relationships, work productivity, etc.).

Second, because of the specific nature of the sample included in this study (e.g., middle-class, above-average educational levels, high proportion of women), the present results may be somewhat limited in their generalizability to other depressive populations.

The third limitation involves possible differences in therapists' competency and adherence in conducting their respective treatment protocols. Despite weekly supervision sessions that were based in part on periodic audiotapes to facilitate therapists' adherence, and whereas no differences emerged concerning subjects' perceptions of their therapists' clinical abilities, future investigations should include independent evaluations to ensure that therapists actually comply with the structure inherent in any treatment outcome study and are equivalently competent in doing so.

Given these caveats, the results of this study generally were consistent with the original hypotheses. Specifically, this evaluation does provide support for the efficacy of problem-solving therapy in reducing depressive symptoms, because both PST and APST members were found to be significantly less depressed at both posttreatment and follow-up than WLC subjects. In this light, it also adds conceptual support for a problem-solving formulation of depression (Nezu, 1987; Nezu et al., 1989).

<sup>2</sup> Another approach that Jacobson, Follette, and Revenstorf (1984) suggested involves the use of normative data to determine whether a given subject at posttreatment has a score within the nondysfunctional range. According to Kendall, Hollon, Beck, Hammen, and Ingram (1987), individuals with BDI scores less than 10 can be considered nondepressed. Using this as a criterion, 85.71% of the PST subjects (12 out of 14), 42.86% of the APST subjects (6 out of 14), and 9.10% of the WLC subjects (1 out of 11) were found to be nondepressed at posttreatment (i.e., BDI scores between 0 and 9).

<sup>3</sup> Because of space limitations, actual results from these analyses are omitted. Interested readers can obtain this information from Arthur M. Nezu.

Moreover, because PST subjects had lower depression scores, in comparison with those of APST members, at both the post-treatment and follow-up assessment points, this study further suggests that training in the problem-orientation process added significantly to the overall effectiveness of the treatment package. Comparison of the analyses of the three PSI scales provides some insight into the possible underlying mechanism concerning these differing results. More specifically, although subjects in both treatment conditions increased their self-reported usage of various effective problem-solving tasks as measured by the AAS scale of the PSI (e.g., generating a variety of alternative solutions, evaluating the consequences of such options), APST subjects reported lower levels of confidence regarding their problem-solving ability and perceptions of poorer personal control than PST subjects who received problem-orientation training. Implications of these findings are threefold.

First, this specific finding is consistent with theories of coping and depression that emphasize the importance of various cognitive and motivational variables. For example, Lazarus and Folkman (1984) argued that one's appraisal of stressful events is crucial in determining the outcome of the coping reactions, including the quality of the consequent affective response. Further, according to self-efficacy theory (Bandura, 1977), individuals' expectations concerning their ability to effectively resolve problems determines whether they actually do cope successfully with stressful events.

Second, the relative superiority of training in the entire problem-solving model over the APST condition provides conceptual support for the overall social problem-solving model of treatment (Nezu et al., 1989). Although APST members were taught various problem-solving skills, not specifically addressing their problem-solving set (via the problem-orientation component) appears to have led to less effective treatment. Learning problem-solving skills does not automatically guarantee that those skills will be implemented. Because the goal of training in the problem-orientation process is to facilitate adoption of a positive set toward problems in living, thereby increasing one's motivation to engage in the four problem-solving tasks, it is possible that APST subjects were inconsistent in implementing the skills they learned because of their negative orientation (i.e., poor self-efficacy perceptions).

Lastly, and perhaps most importantly, the implication of these findings regarding the treatment of unipolar depression in general involves the importance of addressing multiple target areas. Training in certain problem-solving skills per se appeared to be helpful for symptom reduction for only about half of the subjects in the APST condition. Inclusion of the problem-orientation component seemed to increase this "recovery" rate to approximately between 78% and 86% of the PST sample. This suggests that focusing on motivational training, perceptual training, and skills training in treatment is more preferable than skills training alone, at least within the context of problem-solving approaches to therapy. Depressive illness has been more recently characterized as a multidimensional phenomenon having a multitude of causes (Craighead, 1980; Nezu et al., 1989).

Consistent with this framework, problem-solving therapy, because it is pluralistically structured to address a variety of cognitive and coping skill deficits, would appear to be a particularly efficacious approach for treating depression.

### References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review*, *84*, 191-215.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, *4*, 561-571.
- Craighead, W. E. (1980). Away from a unitary model of depression. *Behavior Therapy*, *11*, 112-118.
- D'Zurilla, T. J. (1986). *Problem-solving therapy: A social competence approach to clinical intervention*. New York: Springer.
- D'Zurilla, T. J., & Nezu, A. (1982). Social problem solving in adults. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (Vol. 1, pp. 202-274). New York: Academic Press.
- Endicott, J., & Spitzer, R. L. (1978). A diagnostic interview: The Schedule of Affective Disorders and Schizophrenia. *Archives of General Psychiatry*, *35*, 837-844.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery and Psychiatry*, *23*, 56-62.
- Heppner, P. P. (1986, August). *Manual for the Problem-Solving Inventory*. Paper presented at the Annual Meeting of the American Psychological Association, Washington, DC.
- Heppner, P. P., & Petersen, C. H. (1982). The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology*, *30*, 537-545.
- Hussian, R. A., & Lawrence, P. S. (1981). Social reinforcement of activity and problem-solving training in the treatment of depressed institutionalized elderly patients. *Cognitive Therapy and Research*, *5*, 57-69.
- Jacobson, N. S., Follette, W. C., & Revenstorf, D. (1984). Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. *Behavior Therapy*, *15*, 336-352.
- Kendall, P. C., Hollon, S. D., Beck, A. T., Hammen, C. L., & Ingram, R. E. (1987). Issues and recommendations regarding use of the Beck Depression Inventory. *Cognitive Therapy and Research*, *11*, 289-299.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Nezu, A. M. (1986a). Effects of stress from current problems: Comparison to major life events. *Journal of Clinical Psychology*, *42*, 847-852.
- Nezu, A. M. (1986b). Efficacy of a social problem-solving therapy approach for unipolar depression. *Journal of Consulting and Clinical Psychology*, *54*, 196-202.
- Nezu, A. M. (1987). A problem-solving formulation of depression: A literature review and proposal of a pluralistic model. *Clinical Psychology Review*, *7*, 121-144.
- Nezu, A. M., Nezu, C. M., & Perri, M. G. (1989). *Problem-solving therapy for depression: Theory, research, and clinical guidelines*. New York: Wiley.
- Spitzer, R. L., Endicott, J., & Robins, E. (1978). Research diagnostic criteria: Rationale and reliability. *Archives of General Psychiatry*, *36*, 773-782.

Received July 25, 1988

Revision received January 4, 1989

Accepted January 19, 1989 ■