A Brief, Multidimensional, Problem-Solving Psychotherapy Outcome Measure

P. Paul Heppner, Caren Cooper, Amy Mulholland, and Meifen Wei
University of Missouri—Columbia

This article provides a test of an application of M. Zeidner and D. Saklofske's (1996) adaptive model of coping to counseling through the development of a brief multidimensional outcome measure for psychotherapy that specifically examines clients' resolution of their presenting problems. Exploratory and confirmatory factor analyses revealed 4 primary factors, all reflecting different components of clients' problem resolution: (a) Problem-Solving Strategies, (b) Problem-Solving Self-Efficacy, (c) Problem Impact on Daily Functioning, and (d) General Satisfaction With Therapy. Descriptive statistics, normative information, and reliability and validity estimates suggest that the Problem Resolution Outcome Survey has promise as an effective psychotherapy outcome measure. The results support the application of Zeidner and Saklofske's adaptive model of coping to the therapy process, as well as the utility of problem-solving constructs within psychotherapy outcome research.

In 1965, Krumboltz maintained that the central reason for the early existence of the applied counseling and clinical professions was that clients need professional assistance for troublesome problems they have not been able to resolve on their own. Sixteen years later, in defining counseling psychology, Fretz (1982) reiterated that counseling aims to increase clients' ability to solve problems and make decisions. In essence, problem solving has been repeatedly conceptualized as central to psychotherapy for decades (e.g., D'Zurilla & Goldfried, 1971; Heppner, 1978; Horan, 1979; Urban & Ford, 1971). Regardless of theoretical orientation, the common goal and thus outcome of psychotherapy can be conceptualized as helping clients to more effectively resolve their concerns or problems (e.g., Heppner & Krauskopf, 1987).

All forms of psychotherapy focus on the various elements of the problem-solving process, such as how the client perceives the problem and what strategies the client attempts to alleviate the problem (see Heppner, 1978). Not surprisingly, research has revealed that there is a positive association between clients' focusing on their life problems and positive therapeutic outcomes (e.g., ORLINSKY, GRAWE, & PARKS, 1994). Thus, because problem solving is an integral aspect of psychotherapy, and because clients seek therapy to resolve specific presenting problems, a basic and central criterion of counseling effectiveness should be whether clients' problems are indeed resolved. Moreover, a substantial body of research indicates that coping and problem-solving activities play a crucial role in physical and psychological well-being when people are confronted with negative or stressful life events (e.g., see summaries by Friedan, 1991; Heppner & Lee, in press).

Thus, the link between problem solving and psychological adjustment, as well as physical well-being, underscores the utility of incorporating problem solving into psychotherapy outcome assessments.

Psychologists have a long history of evaluating whether psychotherapy works (BERGIN & GARFIELD, 1994). Although significant progress has been made (BERGIN & GARFIELD, 1994; SELIGMAN, 1995), there remain nagging questions about the research evidence. Despite the existence of a wide array of assessment instruments, perhaps one of the most central concerns pertains to the adequacy of assessing therapy outcomes (see W. LAMBERT, SALZER, & BICKMAN, 1998). Given the centrality of problem solving to psychotherapy, as well as the extensive empirical support linking problem solving and psychological adjustment, it is a striking omission that none of the existing outcome measures provide a thorough, multidimensional, generalizable assessment of clients' problem solving. Assessing various dimensions of clients' problem solving might provide information that is central to clients' psychological adjustment and constitute the most basic and yet essential therapeutic outcome. In essence, problem solving is a neglected aspect of both the study of the therapeutic process and therapeutic outcomes.

Why is problem solving missing from the assessment of therapy outcomes? In the past, one reason may have been the lack of knowledge about real-life problem solving. Almost 20 years ago, Sternberg (1982) noted that little was known about how people cope with real-life difficulties; around the same time, Horan (1979) lamented, after an extensive literature review, that a technology for helping clients resolve their problems and make decisions had not been developed. Another reason may have been the long-standing
difficulty in assessing real-life problem solving. Thus, earlier psychotherapy outcome researchers were more likely to focus on clients' psychological outcomes (e.g., self-esteem and irrational beliefs) without attention to how clients process information and cope to achieve those psychological outcomes.

The purpose of this study was to use recent advances in the problem-solving and coping literature to guide the development of a multidimensional assessment of clients' problem resolution in therapy. We briefly review three conceptual advances within the problem-solving, coping, and information-processing literatures that were used in developing our inventory: (a) adaptive coping and problem resolution, (b) Anderson's (1983) information-processing model of adaptive control of thought, and (c) problem-solving appraisal.

Early applied problem-solving research focused on steps one might engage in to solve hypothetical interpersonal problems (e.g., Platt & Spivack, 1975), people's ability to think critically (e.g., Watson & Glaser, 1964), and the teaching of specific cognitive skills (e.g., decision making; Nezu & D'Zurilla, 1979) across different problem-solving stages (see D'Zurilla & Goldfried, 1971). Within the very closely related but generally nonoverlapping coping literature, researchers examined a broad array of self-reported cognitive, affective, and behavioral activities that people might engage in when trying to cope with stressful problems (e.g., talking to a friend). In retrospect, the early research on coping and problem solving was based on conceptualizations of coping and problem solving much simpler than those that followed in the next 20 years.

In the 1980s and 1990s, research on stress, coping, and problem solving proliferated. In short, the accumulated evidence strongly indicated that coping processes may moderate the effects of stress on both psychological and physical well-being and that it was not stress per se, but rather how one copes with stressors, that affects adaptational outcomes (Zeidner & Endler, 1996). In the 1990s, the constructs of adaptive coping and problem resolution were introduced, bringing a new focus on the impact of coping, or coping effectiveness (vs. simply tallying the frequency of particular coping strategies, such as "talking to a friend"). For example, Zeidner and Saklofske (1996) explicitly extended the conceptualization of adaptive coping by focusing on the "successful resolution of coping tasks" (p. 509), operationalized as coping effectiveness. Likewise, around the same time, Heppner, Cook, Wright, and Johnson (1995) published a problem resolution coping inventory and found that it added significant variance in predicting psychological adjustment even after traditional problem-solving and coping measures had been entered into the regression equation.

A second conceptual advancement occurred in the late 1970s and early 1980s as two sets of events led to another line of research in the problem-solving literature labeled problem-solving appraisal. First, investigators become more interested in the manner in which one appraises one's abilities (e.g., Antonovsky, 1979); subsequently, Bandura (1986) published his book on self-efficacy, which provided strong support for a situation-specific appraisal (self-efficacy) affecting motivation, behavior, thoughts, and emotional reactions to stressful situations. Butler and Meichenbaum (1981) integrated appraisal into the problem-solving literature, hypothesizing that problem-solving appraisal not only would affect problem-solving performance but might be an important predictor of the problem-solving process. Second, Heppner and Pe-
solving appraisal literature (see Heppner, 1988). The second set of items assessed the perceived effectiveness of clients' problem resolution at a macrolevel, reflected in client satisfaction with counseling. The other three criteria related to the impact of problem resolution on different life domains: resuming—engaging in normal daily activities, controlling emotional distress, and maintaining positive self-esteem. Subsequently, we developed a third set of items to assess the interference of the presenting problem in seven domains of clients' lives. In short, the research goal was to use several of the criteria of coping effectiveness within Zeidner and Saklofske's model of adaptive coping to provide a broad assessment of problem resolution as a way of measuring psychotherapy outcomes.

Thus, this study provided a test of an application of Zeidner and Saklofske's (1996) adaptive model of coping to counseling by (a) using their coping effectiveness criteria to guide the development of items for the Problem Resolution Outcome Survey (PROS), (b) empirically testing the items through factor analysis, and (c) conducting a longitudinal investigation involving a prospective design with normed instruments to provide a rigorous examination of the therapeutic utility of the instrument. Specifically, the prospective design was used to provide several estimates of construct and convergent validity. Prospective longitudinal designs have been particularly called for to identify changes in coping and problem solving over time (Lazarus, 2000).

Method

Client Sample 1

Participants. Participants were 239 university counseling center clients enrolled at a large midwestern public university. Participation was voluntary, and most of those who volunteered were female (74%). The mean age was 23 years (SD = 5.72), and the participants were primarily White (86%); 8% were African American, 2% were Latino, 1% were Asian American, 1% were international students, less than 1% were Native American, and less than 1% reported that they were of other racial–ethnic backgrounds. The majority of participants were single (65%), and they represented all years in school (18% were freshmen, 21% were sophomores, 23% were juniors, 23% were seniors, 12% were graduate students, and 3% provided no information about year in school). Fifty-seven percent reported having received counseling.

Procedure. Data collection occurred on four occasions. Client participation was voluntary, and participants were told that by completing the pretest and a posttest following the conclusion of counseling, they would receive monetary compensation ($25). Of the 310 clients offered participation, 77% completed a pretest packet (n = 239). Before the intake interview, new clients seeking counseling–psychotherapy were provided consent forms and pretest questionnaires, including the PSI, and the Client Information Form (CIF). Eighty-eight percent of the clients (n = 211) also completed the Computerized Assessment System for Psychotherapy Evaluation and Research (CASPER); the 12% (n = 28) of clients who did not complete the PROS were either not interested in doing so or did not want to return to the counseling center for that portion of the intake procedure or saw a senior staff counselor who did not require clients to complete the PROS. Participants completed the pretest packets in an average of 10 min.

Of the 239 clients who completed pretests, 151 returned to the counseling center for at least one counseling session. These 151 participants received posttest packets in the mail after termination of counseling. Twelve percent of the participants (n = 18) had moved or left the university without leaving a forwarding address and thus could not be located for posttest assessment. Seventy-five percent (n = 100) of the participants who could be located completed a posttest packet. Posttest packets included the PROS, PSI, Counselor Rating Form—Short Form (CRF-S), Working Alliance Inventory—Short Form (WAI-S), and CASPER Outcome; posttest packets required an average of 15 min to complete. After completion of the posttest packet, participants were compensated $25. In addition, participants were asked to indicate interest in future participation in 1-month follow-up data collection.

All participants who indicated interest were mailed 1-month follow-up packets (n = 71). Eleven percent of the participants (n = 8) had moved or left the university without leaving a forwarding address and thus could not be located for the 1-month follow-up. Seventy-nine percent (n = 50) of the participants who could be located completed a 1-month follow-up packet. The 1-month follow-up packets were identical to the termination packets and included the PROS, CRF-S, PSI, WAI-S, and CASPER Outcome. Clients were compensated $15 for 1-month follow-up participation. In addition, clients were asked to indicate their interest in future participation in 6-month follow-up data collection.

Finally, all participants who indicated interest were mailed 6-month follow-ups (n = 44). Five percent of the participants (n = 2) had moved or left the university without leaving a forwarding address and thus could not be located for the 6-month follow-up. Seventy-six percent (n = 32) of clients who could be located completed a 6-month follow-up packet. The 6-month follow-up packets were identical to the posttest and 1-month follow-up packets. Clients were compensated $15 for 6-month follow-up participation.

Client Sample 2

Participants. As a means of obtaining more client data, an additional 95 clients participated in the study; these participants were university counseling center clients enrolled in three universities: a large midwestern university (n = 50), a large southeastern university (n = 29), and a medium-sized southwestern university (n = 16). Participation was voluntary, and participants were told that by completing a pretest and a posttest following the conclusion of counseling, they would receive monetary compensation ($10). The majority of the participants were female (66%), and their mean age was 24 years (SD = 8.04). Participants were primarily White (approximately 86%); 4% were Latino, 3% were international students, 2% were African American, 2% were Asian American, and 2% reported that they were of other racial–ethnic backgrounds. The majority of the participants were single (75%), and they represented all years in school (19% were freshmen, 16% were sophomores, 22% were juniors, 14% were seniors, 28% were graduate students, and 1% provided no information about year in school). Fifty-three percent reported having received counseling.

Procedure. Three additional university counseling centers were contacted and asked to collect client pretest and posttest data. As a result of procedural and time constraints, only the demographic questionnaire and the PROS were administered. In all three locations, clients were offered participation either immediately after the assessment interview (e.g., before being matched to a counselor) or immediately after the first session (e.g., after being matched to a counselor). The timing of client solicitation depended on the logistics of each counseling center, and the procedure used was that determined by counseling center staff to be the most effective in their particular center of soliciting participation as early in the counseling process as possible. Because different procedures were used at each counseling center, it was not possible to ascertain the acceptance rate. Participation was voluntary, and clients were informed that by completing both the pretest and posttest (i.e., at the conclusion of counseling), they would be financially compensated ($10). Counselors distributed posttests during the termination session or by mail for those clients who failed to show for a termination session. The following numbers of posttests were received from the universities, representing 38% of the clients who completed the posttest inventories: large midwestern university, n = 23; large southeastern university, n = 8; and medium southwestern university, n = 5.
We examined whether clients who participated in the study were different from those who chose not to participate in the study. Because data were unavailable, we could not examine whether those who chose to participate in the study at intake were different from those who chose not to participate at all. However, no differences were found between those who did participate throughout the study and those who dropped out after intake across the wide range of demographic and conceptual variables (e.g., age, sex, race–ethnicity, relationship status, year in school, CASPER pretest, and PSI).

Counselor Sample

Participants. Counselors (n = 73) at the university counseling center where the first client sample was obtained participated in the study. Their participation was also voluntary. Forty-nine percent of the counselors were men, and 51% were women. The mean age was 32.86 years (SD = 9.67), and the participants were primarily White (67%); 10% were African American, 8% were Asian American, 7% were Latino, 5% were international students, and 3% were Native American. In regard to counseling experience, 18% were senior staff psychologists, 33% were predoctoral interns, 36% were doctoral or master’s students enrolled in at least their second practicum, and 13% were doctoral or master’s students enrolled in their first practicum. More specifically, among senior staff, participants had seen clients for a mean of 8.27 years (SD = 9.65). Predoctoral interns and practicum students had seen clients for a mean of 3.94 semesters (SD = 2.47). The counselors’ primary theoretical orientations included eclectic (25%), interpersonal (22%), psychodynamic (14%), cognitive–behavioral (12%), feminist (10%), object relations (8%), systems (6%), and client centered (3%).

Procedure. Counselors were informed about the study by the investigators, who made announcements and answered questions in practicum classes and staff meetings. Sixty-eight counselors were offered participation, and participation was voluntary; 41 counselors took part in the study (60%). After participating clients had been assigned counselors, counselors were notified that their clients were participants in the study. Many counselors were matched to more than one participating client, and thus counselors were given an assessment packet for each participating client and were asked to contribute to the study in two ways. First, they were offered financial compensation for completing an assessment at the end of counseling for each participating client ($10). Counselor assessment packets included an information sheet, a consent form, a payment sheet, a demographic sheet, a counselor form of the PROS, and the counselor form of the WAI-S. Counselors were instructed to complete the PROS by indicating their perceptions of their clients’ counseling outcomes at the end of counseling. Participating counselors completed assessment packets in an average of 10 min.

Instruments

Five instruments (PROS, CRF-S, WAI-S, PSI, and CASPER) and two demographic forms (Client Information Form [CIF] and Counselor Demographic Questionnaire [CDQ]) were used in the study.

Problem Resolution Outcome Survey: Item development. The goal of the PROS was to provide a broad and multidimensional assessment of clients’ resolution of their presenting problems as a way of measuring psychotherapy outcomes. To this end, three sets of items were developed. Part 1 of the inventory assessed the perceived effectiveness of problem-solving strategies or approaches to resolve the problem in two ways: (a) focusing on clients’ level of information processing related to their problem-solving strategies and (b) assessing clients’ problem-solving self-efficacy in resolving their problems. The development of the Part 1 items was, first and foremost, guided by Anderson’s (1983) information-processing theory of problem solving, which is well suited to identifying the level of information processing involved in key problem-solving activities related to presenting problems (Heppner & Krauskopf, 1987). In essence, the goal was to assess clients’ progress in resolving their presenting problems by assessing their reported level of processing across four major problem-solving activities (encoding, goals, planning and pattern matching, and actions). Moreover, guided by the problem-solving appraisal literature, P. Paul Heppner developed an additional five items to assess problem solving self-efficacy, a construct that is not tapped by information-processing theory but has demonstrated clinical and predictive utility (Heppner & Baker, 1997). The following three rules guided construction of the items. First, although the various problem-solving activities are often intertwined and in reality nonindependent, to initially obtain an equal representation of the five activities, each item needed to have a primary focus on one of the activities. Second, to avoid confounding the items with elements of psychopathology (see Stanton, Danoff-Burg, Cameron, & Ellis, 1994), items could not contain specific symptoms of psychological maladjustment (e.g., anxiety or depression) but would, rather, assess generic information-processing activities found across different client problems. Third, each item needed to focus on activities relative to the problems for which clients were seeking therapeutic assistance rather than problem-solving activities in general.

The procedures involved in developing the Part 1 items consisted of at least four different activities, all of which resulted in deletions of, additions to, or refinement of the items. First, P. Paul Heppner (a) reviewed the literature pertaining to problem solving, psychotherapy outcomes, and information processing and (b) discussed and compared assessment strategies with some of the leading psychotherapy process and outcome researchers. Guided by information-processing theory, problem-solving appraisal, and the rules just described, P. Paul Heppner, with more than 25 years investigating problem solving, initially developed 25 Likert items (i.e., 5 items for each of the four major problem-solving activities and problem-solving efficacy). The instructions asked participants to indicate to what extent they agreed that each statement described how they were dealing with the problems for which they were currently seeking therapeutic assistance (1 = strongly agree, 6 = strongly disagree).

Second, Part 1 of the inventory was piloted in a treatment evaluation study of a short-term bereavement therapy group. Although the sample was very small, the pilot data were helpful in two ways. The pretest and posttest data indicated substantial variability on items and suggested that the items may be sensitive to client change in psychotherapy in conceptually consistent ways; moreover, pretest to posttest changes were consistent with anecdotal ratings made by two co-therapists.

Third, the items were expanded and further refined. Caren Cooper, with more than 10 years of therapy experience, then refined all 25 items. At that point, 10 practicing therapists were consulted regarding item wording as well as the assessment of major dimensions of psychotherapy outcomes. Next, the items were piloted with 10 counseling center clients. Specifically, clients were asked to not only respond to each item but also provide a narrative response after each item to explain why they rated each item as they did, which allowed the experimenters to evaluate how clients interpreted each question. In addition, clients were then individually interviewed to further assess item clarity, any sources of confusion, and whether the items provided an accurate assessment of their situation. Overall, feedback from both counselors and clients was positive; feedback for fine-tuning the items focused primarily on clarifying and simplifying terminology, word choices to facilitate understanding of items (especially for clients without a history of prior counseling), redundancy among items, and grammatical issues. On the basis of the feedback, the items were revised and refined.

Fourth, the final version of items was subjected to a type of “back translation” (Smith & Kendall, 1963). A colleague who was unaware of the purpose of the study and previously had not been involved in item con-
structure was asked to place each item into the information-processing or self-efficacy categories; only 1 of the 25 items was misclassified, which suggested that the items reflected the intended categories. The final item set contained 12 positively and 13 negatively worded items. Instructions asked participants to indicate, on a 6-point Likert scale (1 = strongly agree, 6 = strongly disagree), to what extent they agreed that each statement described how they were dealing with the specific problems for which they were currently seeking therapeutic assistance. Finally, one validity check item was added to Part 1: "Fill in the number ‘2’ for this item" (any incorrect response to this item would result in eliminating the participant from the study).

Part 2 items assessed the degree to which clients’ problems interfered with different life domains, specifically resuming—engaging in normal activities, controlling emotional distress, and maintaining positive self-esteem. Thus, the focus of Part 2 was on assessing the level of interference of the clients’ presenting problems, or impairment, across seven common problem domains: mood, thinking or judgment, self-esteem, relationships, school or work, spirituality, and legal issues. Participants were asked to rate, on a 5-point Likert scale, how much their current problems were interfering with each of the seven domain areas (1 = no interference at all, 5 = major interference). Thus, if counseling is effective in facilitating the resolution of clients’ problems, clients should evidence adaptive outcomes across several areas of daily functioning.

Part 3 items assessed the perceived effectiveness of any resolution of the client’s problem by examining the client’s satisfaction with counseling in general after termination of counseling. Three items assessed general client satisfaction (i.e., satisfaction with outcome, return if need arises, and recommending others). Participants were asked to indicate their agreement or disagreement with each item using a 6-point Likert scale (1 = strongly agree, 6 = strongly disagree).

CRF–S. The CRF–S (Corrigan & Schmidt, 1983) is a 12-item self-report questionnaire that measures clients’ perceptions of counselor behaviors. Items are measured on a 7-point Likert scale ranging from not very (1) to very (7). The CRF–S includes three subscales describing perceived counselor behavior: expertise, attractiveness, and trustworthiness. Perceived expertise (4 items) is described as the client’s belief that problems can be effectively solved because the counselor possesses information and means of interpreting information that will help the client (Strong & Dixon, 1971). Perceived attractiveness (4 items) is defined as the client’s positive feelings about the counselor, liking and admiration for the counselor, desire for the counselor’s approval, and desire to be more similar to the counselor (Schmidt & Strong, 1971). Perceived trustworthiness (4 items) is described in terms of the counselor’s sincerity, openness, and absence of motives for personal gain (Barak & LaCrosse, 1975). Scores on the subscales of the CRF–S range from 4 to 28, with higher scores reflecting higher levels of expertise, attractiveness, and trustworthiness. Corrigan and Schmidt (1983) reported alpha coefficients for the subscales ranging from .82 to .94. In this study, alpha coefficients ranged from .94 to .97 for the CRF–S at Times 2–4. High correlations among three factors suggested a common general counselor factor (e.g., the “good counselor”). Although Tracey, Glidden, and Kokotovic (1988) recommended that the CRF–S be interpreted with a two-step hierarchical factor structure, only the CRF total score was used in this study to provide a general index of counselor credibility.

WAI–S. The WAI–S (Tracey & Kokotovic, 1989) is a 12-item self-report questionnaire designed to measure the therapeutic relationship. Each item is rated on a 7-point Likert scale ranging from never (1) to always (7). Total scores range from 12 to 84; higher scores indicate a stronger working alliance. The WAI–S comprises the four highest loading items from each of the three WAI subscales: Bond, Goals, and Task. Bond represents the development of personal bonds between the client and therapist. Goals represents the agreement between client and therapist on treatment goals. Task represents the agreement between client and therapist on the tasks to achieve the agreed-on goals. Alpha coefficients for the WAI–S from a sample of 124 client–counselor dyads were .98 for client ratings and .95 for counselor ratings (Tracey & Kokotovic, 1989). In this study, alpha coefficients ranged from .94 to .96 for clients at Times 2–4; the coefficient was .95 for counselors at Time 2. Validity studies have shown that counselor ratings of the working alliance are positively associated with mutual termination (Tryon & Kane, 1993) and therapeutic outcome (Kivlighan &Shaughnnessy, 1995). Both the counselor form and the client form were used in this study.

PSI. The PSI (Heppner, 1988; Heppner & Petersen, 1982) consists of 32 six-point Likert items that measure general expectancies and motivational aspects of problem solving, which are distinct from actual problem-solving abilities. The PSI has a total score and three factors derived from a previous factor analysis (Heppner & Petersen, 1982): Problem-Solving Confidence, Approach–Avoidance, and Personal Control. Higher scores indicate a lack of problem-solving confidence, an absence of personal control, and an avoidant problem-solving style. Only the PSI total score was used in this study to provide a global assessment of problem-solving style. The PSI has been shown to be reliable (see Heppner, 1988; Larson, Pierrel, Imaco, & Allen, 1990; Leong, 1990); for example, estimates of internal consistency and stability over a 2-week period (N = 31) for the total inventory were .90 and .89, respectively. In this study, alpha coefficients ranged from .93 to .96 for the PSI total score at Times 1–4. A wide range of validity estimates from more than 100 investigations are available (see Heppner, 1988, for a partial listing).

CASPER—CASPER (Version 2; Farrell &McCullough, 1989) is a method for collecting information on client problems and their change over the course of therapy. CASPER is a computerized intake assessment and, subsequently, an individually tailored psychotherapy outcome measure. Items were rationally derived from a content analysis of more than 25 of the most commonly used intake instruments (e.g., Beck Depression Inventory [BDI], Minnesota Multiphasic Personality Inventory [MMPI], and Symptom Checklist 90—Revised [SCL–90–R]) and problems frequently reported by psychiatric inpatients and outpatients (see McCullough, Longabaugh, & Jenik-Reny, 1984, for details). The CASPER consists of 98 questions that assess the frequency and severity of 62 major problems. There are 13 problem areas: physical symptoms (8 items), mood problems (11 items), thought problems (10 items), overt behavior problems (sleep, eating, chemical dependency, repeated behaviors or compulsions, and suicidal thoughts or behaviors; 20 items), life tasks (7 items), leisure activities (8 items), interpersonal behaviors (9 items), social support (6 items), family relations (3 items), sexual behavior (5 items), self-concept (4 items), environmental stressors (4 items), and life satisfaction (3 items). In addition, 3 questions assess overall global functioning. The CASPER also contains 15 demographic questions.

During a CASPER interview, questions are presented to the client in various response formats (e.g., behavioral frequencies, such as the number of days in the past month a symptom was present; Likert-type scales to assess severity; and multiple-choice responses to assess issues such as sexual orientation). The questions appear on the computer monitor, and clients press the appropriate computer keys to indicate their responses. Throughout the CASPER, the computer branches out to more specific questions on the basis of the client’s previous responses, which results in a more thorough assessment of particular major problems reported by each client (Farrell, Cumplair, & McCullough, 1987). Alpha coefficients for responses within problem types range from .83 to .88, with medians ranging from .65 to .87 (Farrell et al., 1987). In this study, alpha coefficients for the problem types ranged from .50 to .88. Estimates of concurrent validity have indicated that various CASPER major problem summaries are moderately correlated with overall functioning as measured by the SCL–90–R (Derogatis, 1983) and the MMPI (Hathaway & McKinley, 1967).

We used four scores from the CASPER in this study. The means of each individual’s major problems were labeled the mean severity rating of major problems (MSRMP); this represents an individually tailored score for the
major problems confronting each particular client. We also used a mean rating of all possible problems (not only major problems) by creating a mean of six problem areas formulated by Heppner et al. (1994): chemical problems, mood problems, thought problems, physical problems, suicide problems, and interpersonal problems. This score, labeled general personal distress (GPD), represented problem severity across a broad range of problems. The GPD alpha coefficient was .93 in this study. A third variable was a global distress rating (GDR) based on the three items that assessed overall global functioning. The GDR alpha coefficient was .77 in this study. The fourth CASPER score used in this study pertained to CASPER outcome. The client’s responses generate a CASPER outcome assessment individually tailored to his or her prioritized goals for counseling. CASPER outcome includes five areas of assessment. Three sets of questions assess how much each individual major problem (a) has bothered the client during the past week, (b) has changed since the client started counseling or therapy, and (c) was focused on during treatment. The other two parts assess global functioning and general satisfaction with counseling. These five areas were combined to create a general CASPER outcome measure.

**CIF.** The CIF was constructed (for a midwestern public university’s counseling center) to collect demographic data before a client’s intake session. Information requested included age, sex, race-ethnicity, relationship status (e.g., single, married, or divorced), semester standing, and whether the client had undergone previous counseling.

**CDQ.** The CDQ was constructed by the investigators specifically for this study. Information requested included level of training, age, sex, race-ethnicity, and primary theoretical orientation.

### Results

#### Factor Structure

**Part 1.** In a preliminary analysis, we initially tested the PROS data to determine whether the five-factor (information processing and problem-solving self-efficacy) model that guided construction of the items would serve as a good template for the data (n = 331; all pretest data from Samples 1 and 2). Thus, a five-factor structure was initially examined, in a maximum-likelihood confirmatory factor analysis, through CALIS in SAS. The initial result was χ² (266, N = 333) = 1,105.3, p < .0001, comparative fit index (CFI) = .66, Bentler-Bonett normed fit index (NFI) = .60, non-normed fit index (NNFI) = .61, root mean square error of approximation (RMSEA) = .10. Thus, the data did not fit the five-factor theoretical model that guided the development of the items.

Subsequently, the factor structure was examined in exploratory factor and confirmatory factor analyses. The sample was split (odd vs. even participant numbers) into two data sets to develop the factor structure in the first data set and confirm the factor structure in the second data set. The maximum-likelihood method was used for the exploratory factor analysis. Four factors had eigenvalues greater than 1.0. On the basis of eigenvalues being greater than 1.0 and a scree plot (Cattell, 1965), two-, three-, and four-factor oblique and orthogonal models were considered to allow a thorough examination of both the statistical and conceptual validity of different factor structures. On the basis of (a) conceptual considerations, (b) items with factor loadings above .4 but no loadings above .3 on another factor, and (c) alpha coefficients, an oblique rotation was selected that produced two factors (eigenvalues of 10.91 and 3.27) and accounted for 75% of the common variance. Items, factor loadings, and item means for the two-factor solution are presented in Table 1.

In addition, a confirmatory factor analysis was used to test the stability of the two-factor oblique rotation. The least square maximum-likelihood method was used for the confirmatory factor analysis. The initial result was χ² (103, N = 166) = 276.29, p < .0001, CFI = .79, GFI = .83, NNFI = .76, NFI = .71, RMSEA = .10. The modification indexes suggested the need to improve the model by allowing some of the error terms to covary with each other. This modification resulted in an excellent fit for the model, χ² (83, N = 166) = 78.81, p < .0001, CFI = 1.00, GFI = .95, NNFI = 1.00, NFI = .92, RMSEA = .00. All of the factor loadings were significant (p < .001), providing additional evidence that the two factor structures were well constructed by the 16 items. Thus, the confirmatory factor analysis provided additional support for the existence of the two-factor oblique rotation for the items in Part 1 of the PROS.

The first factor consisted of seven positively worded items with loadings greater than .41 (three pattern matching items, two goal items, one encoding item, and one action item). The items with the highest factor loadings were Item 10 (“I have a specific plan for how to handle my problems”) and Item 12 (“I have a very organized goal for solving my problems”). In essence, the items seemed to indicate different strategies for resolving problems with specific encoding, plans, goals, and actions. Factor 1 was labeled Problem-Solving Strategies (PSS) and defined as the tendency to develop strategies with specific plans, goals, and actions for resolving the current problems confronting an individual for which he or she has sought psychological assistance. Higher scores indicate more use of problem-solving strategies to develop plans and goals.

The second factor consisted of nine (seven negatively and two positively worded) items with loadings greater than .44 (three self-efficacy items, three pattern matching items, one goal item, one encoding item, and one action item). The items with the highest loadings were Item 15 (“I feel capable of coping with my problems”) and Item 22 (“Whatever I do, my problems seem to be getting worse”). Three of the four highest loading items were self-efficacy items, whereas many of the other items suggest self-efficacy across different information-processing activities (e.g., “I can’t often think of things I should do when dealing with my problem”). Thus, the theme of the items seemed to reflect self-efficacy about problem solving. Factor 2 was labeled Problem-Solving Self-Efficacy (PSSE) and defined as a tendency to report a sense of self-efficacy in a wide range of coping activities involving current problems confronting an individual for which he or she has sought psychological assistance. Higher scores indicate greater problem-solving self-efficacy (negatively worded items were reverse scored).

Estimates of internal consistency revealed the following alpha coefficients for exploratory factor analysis and confirmatory factor analysis data sets, respectively: PSS, .80 and .79, and PSSE, .80 and .81. Similar alpha coefficients for the PSS factor were found at Times 2–4 (.79, .78, and .87, respectively). The alpha coefficients for the PSSE were higher at Times 2–4 (.87, .89, and .93, respectively). Thus, these initial estimates of reliability suggest that the two factors have acceptable levels of internal consistency. The factor scores were moderately intercorrelated for exploratory factor analysis and confirmatory factor analysis data sets, respectively (rs = .36 and .48, ps < .0001), suggesting that these two factors are somewhat interrelated but share only about 13% and 23% of variance.
Table 1
A Summary of Items, Factor Loadings, and Mean Item Ratings for the Problem Resolution Outcome Survey: Parts 1–3

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-Solving Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I have a specific plan for how to handle my problems</td>
<td>.84</td>
<td>-.08</td>
<td>3.0</td>
<td>1.35</td>
</tr>
<tr>
<td>12. I have a very organized goal for solving my problems</td>
<td>.76</td>
<td>-.01</td>
<td>2.8</td>
<td>1.30</td>
</tr>
<tr>
<td>11. I have a very clear picture of the goals I need to reach to solve my problems</td>
<td>.75</td>
<td>-.09</td>
<td>3.9</td>
<td>1.43</td>
</tr>
<tr>
<td>Problem-Solving Self-Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I feel capable of coping with my problems</td>
<td>.18</td>
<td>.63</td>
<td>3.6</td>
<td>1.45</td>
</tr>
<tr>
<td>22. Whatever I do, my problems seem to be getting worse</td>
<td>.21</td>
<td>.60</td>
<td>3.5</td>
<td>1.54</td>
</tr>
<tr>
<td>4. My problems are too big and hard for me to solve</td>
<td>-.07</td>
<td>.59</td>
<td>3.4</td>
<td>1.50</td>
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<tr>
<td>Problem Impact on Daily Functioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Mood</td>
<td>.88</td>
<td></td>
<td>4.1</td>
<td>1.02</td>
</tr>
<tr>
<td>33. Self-esteem</td>
<td>.71</td>
<td></td>
<td>3.7</td>
<td>1.33</td>
</tr>
<tr>
<td>31. Thinking or judgment</td>
<td>.62</td>
<td></td>
<td>3.3</td>
<td>1.11</td>
</tr>
<tr>
<td>Problem Impact on Daily Functioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. School or work</td>
<td>.45</td>
<td></td>
<td>3.2</td>
<td>1.24</td>
</tr>
<tr>
<td>30. Relationships</td>
<td>.44</td>
<td></td>
<td>3.9</td>
<td>1.18</td>
</tr>
<tr>
<td>General Satisfaction With Therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. I am satisfied with how counseling helped me</td>
<td>.94</td>
<td></td>
<td>4.9</td>
<td>1.53</td>
</tr>
<tr>
<td>41. I would recommend this counseling service to other people</td>
<td>.92</td>
<td></td>
<td>5.3</td>
<td>1.21</td>
</tr>
<tr>
<td>40. If the need should arise, I would seek counseling again</td>
<td>.67</td>
<td></td>
<td>5.5</td>
<td>1.05</td>
</tr>
</tbody>
</table>

Note. Part 1, N = 167; Part 2, N = 166; Part 3, N = 67.

Part 2. Similar to Part 1, the factor structure for Part 2 was examined through exploratory factor analysis in the first data set and confirmatory factor analysis in the second data set. On the basis of eigenvalues being greater than 1.0 and a scree plot (Cattell, 1965), a maximum-likelihood analysis suggested one factor (eigenvalue = 2.85) that accounted for 100% of the common variance. Because there was only one factor, no rotation was conducted. Factor loadings above .40 were retained, resulting in five items retained on this factor for Part 2. The maximum-likelihood method was used for the confirmatory factor analysis. The fit was excellent, χ²(4, N = 166) = 2.97, p < .0001, CFI = 1.00, GFI = .99, NNFI = 1.00, NFI = .98, RMSEA = .00. All of the factor loadings were significant (p < .001), providing additional evidence that the factor structure was well constructed. This factor was labeled Problem Impact on Daily Functioning (PIDF) and defined as the degree of interference of clients' presenting problems on several domains of daily functioning; higher scores indicate greater interference with daily functioning. The five items, their factor loadings, and item means are presented in Table 1. PIDF alpha coefficients were .73 for the exploratory factor analysis data set and .67 for the confirmatory factor analysis data set. Higher alpha coefficients were found at Times 2–4 (.83, .88, and .88, respectively).

Part 3. The factor structure for Part 3 was also examined through exploratory factor analysis in the first data set and confirmatory factor analysis in the second data set. On the basis of eigenvalues being greater than 1.0 and a scree plot (Cattell, 1965), a maximum-likelihood analysis suggested one factor (eigenvalue = 6.66) consisting of three items (only items with loadings above .40 were retained) that accounted for 100% of the common
variance. Because there was only one factor, no rotations were conducted. The least square maximum-likelihood method was used for the confirmatory factor analysis. Similar to Parts 1 and 2, the fit indexes were very high, $\chi^2 (1, N = 66) = 0.02, p < .8978$, CFI = 1.00, GFI = 1.00, NNFI = 1.00, NFI = 1.00, RMSEA = .00. All of the factor loadings were significant ($p < .001$), which further indicated that this factor structure was well constructed.

The items with the highest factor loadings were Item 39 ("I am satisfied with how counseling helped me") and Item 41 ("I would recommend this counseling service to other people"). This factor was labeled General Satisfaction with Therapy (GST) and defined as degree of satisfaction about the counseling experience in general; higher scores indicate more satisfaction. The three items, their factor loadings, and item means for the Part 3 factor are presented in Table 1. The GTS alpha coefficient for both the exploratory factor analysis and confirmatory factor analysis data sets was .87. Similar alpha coefficients were found at Times 3 and 4 (.87 and .88, respectively).

**Table 2**

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PSS</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>333</td>
</tr>
<tr>
<td>2. PSSE</td>
<td>.42*</td>
<td>—</td>
<td>—</td>
<td>333</td>
</tr>
<tr>
<td>3. PIDF</td>
<td>-.23*</td>
<td>-.47*</td>
<td>—</td>
<td>332</td>
</tr>
<tr>
<td><strong>Time 2</strong></td>
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<td>1. PSS</td>
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<td>2. PSSE</td>
<td>.65*</td>
<td>—</td>
<td>—</td>
<td>127</td>
</tr>
<tr>
<td>3. PIDF</td>
<td>-.48*</td>
<td>-.66*</td>
<td>—</td>
<td>136</td>
</tr>
<tr>
<td>4. GST</td>
<td>.37*</td>
<td>.24*</td>
<td>-.21</td>
<td>135</td>
</tr>
<tr>
<td><strong>Time 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PSS</td>
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<td>—</td>
<td>—</td>
<td>50</td>
</tr>
<tr>
<td>2. PSSE</td>
<td>.70*</td>
<td>—</td>
<td>—</td>
<td>50</td>
</tr>
<tr>
<td>3. PIDF</td>
<td>-.46*</td>
<td>-.83*</td>
<td>—</td>
<td>50</td>
</tr>
<tr>
<td>4. GST</td>
<td>.45*</td>
<td>.29</td>
<td>-.23</td>
<td>50</td>
</tr>
<tr>
<td><strong>Time 4</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. PSS</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>32</td>
</tr>
<tr>
<td>2. PSSE</td>
<td>.84*</td>
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<td>—</td>
<td>32</td>
</tr>
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<td>3. PIDF</td>
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<td>—</td>
<td>32</td>
</tr>
<tr>
<td>4. GST</td>
<td>.57*</td>
<td>.38</td>
<td>-.44*</td>
<td>32</td>
</tr>
</tbody>
</table>

* p < .01.

Note. PSS = Problem-Solving Strategies; PSSE = Problem-Solving Self-Efficacy; PIDF = Problem Impact on Daily Functioning; GST = General Satisfaction With Therapy. Time 1 = pretest; Time 2 = termination; Time 3 = 1-month follow-up; Time 4 = 6-month follow-up.

**Normative Information**

**Part 1.** The pretest means and standard deviations for the sum of the items on each of the two factors were as follows: PSS, $M = 25.8, SD = 6.3$, and PSSE, $M = 30.8, SD = 7.8$. Higher scores on each of the factors are indicative of more problem-solving strategies (range = 7–42) and higher levels of problem-solving self-efficacy (range = 9–54). The means suggest that, on average, college student clinical samples endorsed items on the PSS (average per item = 3.7) and PSSE (average per item = 3.4) factors at a level very close to the midpoint (3.5) of the 6-point Likert scale. In short, these results suggest that college student clinical samples seeking help at a counseling center in this study rated themselves at pretest as being neutral in regard to the effectiveness of their problem-solving strategies and problem-solving self-efficacy to resolve their presenting problems. The stem and leaf plots depicting the distributions of the two factors were examined. The skewness and kurtosis scores for the PSS (skewness = −.08, kurtosis = −.02) and PSSE (skewness = .06, kurtosis = −.19) factors suggest that these two factors involved very close to a normal distribution.

**Part 2.** The pretest mean and standard deviation for the sum of the items on the PIDF were 18.16 and 4.00, respectively. Higher PIDF scores (range = 5–25) indicate that the client’s current problems are interfering more in his or her life. The means suggest that college students seeking help at a counseling center endorsed items on the PIDF (average per item = 3.5) factor close to the midpoint (3) of the 5-point Likert scale, or as having a moderate amount of problem interference in their daily functioning. The stem and leaf plots were also examined for this factor. The skewness and kurtosis scores were −.41 and −.05, respectively, suggesting a close to normal distribution.

**Part 3.** The posttest mean and standard deviation for the sum of the items on the GST were 15.58 and 3.54, respectively. Higher GST scores (range = 3–18) indicate more satisfaction about counseling in general. The means suggest that college students endorsed items on the GST factor (average per item: 5.2) close to the highest point of the 6-point Likert scale. In short, these results suggest that the college student samples in this study rated themselves as being very satisfied with counseling. The stem and leaf plots depicting the distributions of the GST factor were examined. The skewness and kurtosis scores were −1.86 and 3.17, respectively, suggesting that posttest scores on this factor were positively skewed.

To examine whether gender differences existed for the factor scores, we conducted four multivariate analyses of variances (MANOVAs) on the PSS, PSSE, and PIDF by gender for Time 1 and on all four factors for Times 2, 3, and 4. (After balance of statistical power, anticipated effect size, and Type 1 error considerations, alpha was set at .01 for all analyses.) The MANOVA results revealed no overall gender differences on the PSS, PSSE, and PIDF for Time 1, Wilks’s $\lambda = 1.00, F(3, 322) = 0.16, p = .93$. Also, the results showed no overall gender differences on the PSS, PSSE, PIDF, and GST for Times 2–4, Wilks’s $\lambda = .96, F(4, 122) = 1.15, p = .33$; Wilks’s $\lambda = .90, F(4, 45) = 1.27, p = .30$; and Wilks’s $\lambda = 1.00, F(4, 27) = 0.02, p = 1.00$, respectively.
Validity Estimates

Construct validity. Three strategies were used to provide estimates of construct validity. One was to examine the association between clients' PROS scores and well-established psychotherapy process variables that are known to be related to psychotherapy outcomes (Kazdin, 1994). Two process measures shown to have strong associations with outcomes were used: (a) the WAI-S (Tracey & Kokotovic, 1989), one of the best predictors of outcome (Beutler, Machado, & Neufeldt, 1994), and (b) perceived credibility of the therapist as measured by the CRF-S (Corrigan & Schmidt, 1983), long viewed as central to change in psychotherapy (Strong, Welsh, Corcoran, & Hoyt, 1992). It was hypothesized that the client's PROS score would be significantly correlated with the client's ratings on the WAI-S and CRF-S at Times 2, 3, and 4. The second strategy to obtain an estimate of construct validity was to examine the association between the client's self-evaluations on the PROS and ratings from outside observers, particularly people in positions of expertise (Kazdin, 1994). Thus, a second estimate of construct validity was provided by examining the correlation between clients' PROS and the counselor's rating of the client on the PROS; it was hypothesized that there would be a statistically significant correlation between the two. Thus, clients' PROS scores were correlated with counselors' ratings at Time 2. Finally, a third strategy to provide an estimate of construct validity was to examine the sensitivity of the PROS to detecting change before and after counseling. It was hypothesized that the client's PROS score at pretest would be lower than at Times 2–4 and that PROS scores would not differ at Times 2–4.

Zero-order correlations between client ratings on the PROS factors (PSS, PSSE, PIDF, and GST) and the two process measures (WAI-S and CRF-S) at Time 2 are presented in Table 3. The results indicate that two of the four correlations with the WAI-S were statistically significant, such that higher levels of working alliance were associated with higher levels of problem-solving strategies and general satisfaction with counseling. In addition, two of the four correlations with the CRF-S were statistically significant, such that higher levels of counselor credibility were associated with higher levels of problem-solving strategies and

Table 3
Correlations of the PSS, PSSE, PIDF, and GST With Other Measures

<table>
<thead>
<tr>
<th>Scale</th>
<th>n</th>
<th>PSS</th>
<th>PSSE</th>
<th>PIDF</th>
<th>GST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASPER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPD</td>
<td>211</td>
<td>-.17*</td>
<td>-.47*</td>
<td>.49*</td>
<td></td>
</tr>
<tr>
<td>GDR</td>
<td>209</td>
<td>-.26*</td>
<td>-.54*</td>
<td>.52*</td>
<td></td>
</tr>
<tr>
<td>MSRMP</td>
<td>206</td>
<td>-.18*</td>
<td>-.23*</td>
<td>.25*</td>
<td></td>
</tr>
<tr>
<td>PSI</td>
<td>238</td>
<td>-.44*</td>
<td>-.54*</td>
<td>.27*</td>
<td></td>
</tr>
<tr>
<td><strong>Time 2</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>WAI-S</td>
<td>100</td>
<td>.26*</td>
<td>.24</td>
<td>-.24</td>
<td>.81*</td>
</tr>
<tr>
<td>CRF-S</td>
<td>100</td>
<td>.25*</td>
<td>.22</td>
<td>-.10</td>
<td>.69*</td>
</tr>
<tr>
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<td>.57*</td>
<td>.66*</td>
<td>-.62*</td>
<td>.59*</td>
</tr>
<tr>
<td>PSI</td>
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<td>-.64*</td>
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<td>-.29*</td>
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<td>PROS*</td>
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</tr>
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<td>.41*</td>
<td>.47*</td>
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<td>PSSE</td>
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<td></td>
<td></td>
<td>.47*</td>
<td></td>
</tr>
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<td></td>
<td></td>
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<td>.66*</td>
</tr>
<tr>
<td>WAI-S*</td>
<td>73</td>
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<td>.05</td>
<td>-.18</td>
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<td><strong>Time 3</strong></td>
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<td></td>
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<tr>
<td>WAI-S</td>
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<td>.49*</td>
<td>.41*</td>
<td>-.31</td>
<td>.85*</td>
</tr>
<tr>
<td>CRF-S</td>
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<td>.24</td>
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<td>.79*</td>
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<td>.57*</td>
<td>.70*</td>
<td>-.67*</td>
<td>.66*</td>
</tr>
<tr>
<td>PSI</td>
<td>50</td>
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<td>-.70*</td>
<td>.51*</td>
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</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>WAI-S</td>
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<td>CRF-S</td>
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<td>-.72*</td>
<td>-.73*</td>
<td>.42</td>
<td>-.31</td>
</tr>
</tbody>
</table>

Note. All data are from clients, except where indicated. PSS = Problem-Solving Strategies; PSSE = Problem-Solving Self-Efficacy; PIDF = Problem Impact on Daily Functioning; GST = General Satisfaction with Therapy; CASPER = Computerized Assessment System for Psychotherapy Evaluation and Research; GPD = general personal distress; GDR = global distress rating; MSRMP = mean severity rating of major problems; PSI = Problem Solving Inventory; WAI-S = Working Alliance Inventory—Short Form; CRF-S = Counselor Rating Form—Short Form; PROS = Problem Resolution Outcome Survey.

* Counselor rating.

*p < .01.
general satisfaction with counseling. For Time 3, three of the four correlations with the WAI-S and two of the four correlations with the CRF-S were statistically significant (see Table 3). The pattern of results for Time 4 was similar to the results from Time 3 (Table 3).

Next, zero-order correlations between the client-rated PROS factors (PSS, PSSE, PIDF, and GST) and the counselor’s PROS ratings were examined (see Table 3). The results indicate that the correlations between counselor and client ratings on the PSS ($r = .43$), PSSE ($r = .41$), and PIDF ($r = .47$) were statistically significant (all $p < .01$). Thus, although clients and counselors often exhibit different perceptions on counseling outcome measures (see M. J. Lambert & Hill, 1994), the results with the PROS indicate some significant overlap between the counselor and client perspectives.

Finally, the sensitivity of the PROS to change was examined, before and after counseling. Four repeated measures one-way analyses of variance were conducted to examine the PSS, PSSE, and PIDF across four time periods and the GST across three time periods. For the PSS, the result indicated a significant time effect, $F(3, 90) = 13.72, p < .01$. In post hoc analyses, the results showed that PSS scores at Time 1 ($M = 25.8, SD = 6.3$) were significantly lower than those at Time 2 ($M = 32.4, SD = 5.1$), $F(1, 30) = 20.96, p < .01$; Time 3 ($M = 31.8, SD = 5.5$), $F(1, 30) = 25.22, p < .01$; and Time 4 ($M = 32.2, SD = 6.2$), $F(1, 30) = 34.6, p < .01$. Moreover, PSS scores at Time 2 were not significantly different from those at Time 3, $F(1, 30) = 0.25, p = .62$, and Time 4, $F(1, 30) = 0.19, p = .67$. Also, PSS scores at Time 3 were not significantly different from those at Time 4, $F(1, 30) = 0.00, p = .95$. That is, significant therapeutic changes on the PSS were found from precounseling to termination, and these changes were stable at 1-month and 6-month follow-ups. The exact patterns were found for PSSE, $M_{s} = 30.8, 40.0, 39.8, and 39.2 (SD_{s} = 7.8, 8.4, 8.9, and 10.0)$, respectively, and PIDF, $M_{s} = 18.2, 14.1, 14.0, and 13.0 (SD_{s} = 4.0, 4.7, 5.5, and 5.1)$, respectively. Although we could not compare the GST from pre- to postcounseling to postcounseling, the stability of ratings was examined across Times 2, 3, and 4. There were no significant differences across the time periods (all $p s > .30$), indicating that clients’ GST ratings were stable from termination through two follow-ups to 6 months later ($M_{s} = 15.6, 14.7, and 14.1, SD_{s} = 3.5, 3.9, and 4.4$, respectively). In summary, it seems that the PROS was sensitive to change in psychotherapy and that, in this case, gains made in therapy were held across three time periods extending to 6 months posttermination.

Convergent validity. To provide estimates of convergent validity, we examined relationships of the PROS with (a) the individually tailored CASPER psychotherapy assessment and outcome measures, which should theoretically overlap to some degree, and (b) perceived problem-solving effectiveness as measured by the PSI (Heppner, 1988), which also should theoretically overlap to some degree. It was hypothesized that there would be a statistically significant correlation between the PROS factors and CASPER therapy outcome as well as the PSI.

Zero-order correlations between the PSS, PSSE, and PIDF and the three indexes of the CASPER pretreatment assessment at Time 1 are presented in Table 3. The results indicate that the PSS, PSSE, and PIDF were correlated at statistically significant levels for all three problem indexes (all $p s < .01$). Thus, at intake, lower client ratings on the PSS and PSSE and higher ratings on the PIDF were associated with higher ratings on the CASPER GPD, GDR, and MSRMP. The correlations ranged from .17 to .54, indicating a low to moderate association but also indicating that these factors do necessarily measure the same dimensions as CASPER.

Zero-order correlations between the PROS factors and the CASPER therapy outcome at Time 2 are also presented in Table 3. All four of the correlations were statistically significant, indicating that the PROS was significantly associated with the CASPER outcomes. More specifically, higher PSS and PSSE scores were associated with more positive CASPER therapy outcomes. Lower PIDF scores were associated with more positive CASPER therapy outcomes. Higher GST scores were associated with more positive CASPER outcomes. The correlations ranged from .57 to .66, again indicating mostly a moderate association between these two outcome measures but also suggesting distinctly different constructs. For Times 3 and 4, a similar pattern of results revealed that all four correlations were statistically significant. Thus, the PROS was substantially correlated with the CASPER psychotherapy outcome measure, providing evidence of convergent validity for the PROS.

Finally, zero-order correlations between the PROS factors and the PSI at Time 1 are presented in Table 3. At intake, higher levels of problem-solving strategies and problem-solving self-efficacy and lower levels of problem impact on daily functioning were associated with more positive problem-solving appraisals of effectiveness. The correlations ranged from .27 to .54, indicating a moderate association but also suggesting distinct constructs.

Finally, zero-order correlations between the PROS factors and the PSI at Time 2 are presented in Table 3. All four factors of the PROS were significantly associated with the PSI. More specifically, more positive levels of problem-solving appraisal of effectiveness were associated with higher levels of problem-solving strategies, problem-solving self-efficacy, and general satisfaction with therapy and lower levels of problem impact on daily functioning (all $p s < .01$). For Time 3, a similar pattern of results indicated that the PSS, PSSE, and PIDF factors were significantly associated with the PSI ($p s < .01, N = 50$). For Time 4, the PSS and PSSE factors were significantly associated with the PSI ($p s < .01, N = 32$). Thus, the PROS was significantly correlated with the PSI across four time periods in theoretically consistent ways, providing additional evidence of convergent validity.

Discussion

The goal of the present research was to develop a theory-driven, non-symptom-based, multidimensional assessment of a generic psychotherapy outcome measure specifically assessing clients’ resolution of their presenting problems from multiple perspectives. The results provide considerable evidence for applying Zeidner and Saklofske’s (1996) adaptational model of coping to counseling. Using the central construct of problem resolution and four of Zeidner and Saklofske’s criteria indicative of coping effectiveness, we developed items to assess microlevel information processing within problem-solving strategies, problem-solving efficacy, level of daily functioning across broad domains, and macrolevel satisfaction with counseling. The results suggested that increases in clients’ resolution of their presenting problems throughout the course of therapy (and including up to 6 months of follow-up) were positively related to well-established counseling processes.
and outcomes in theoretically consistent manners. That is, increases in clients’ problem resolution were associated with more positive client-rated working alliances, perceptions of counselor credibility, and counseling outcomes. These results suggest that Zeidner and Saklofske’s (1996) adaptational model of coping provides a useful theoretical framework to conceptualize adaptational outcomes of psychotherapy. Moreover, at least the four criteria of effective coping identified by Zeidner and Saklofske (1996) and used in this study provide empirical support for their central proposition that problem resolution in an applied context, such as psychotherapy, is reflective of counseling effectiveness.

Factor analyses revealed four primary factors that reflect clients’ resolution of their presenting problems in therapy. The first factor, PSS, consisted of seven items that assessed different strategies for resolving problems with specific goals, plans, and actions. Goals and subsequent plans have been conceptualized as especially critical problem-solving events that serve as “major sparks” (Heppner & Krauskopf, 1987, p. 410) for other problem-solving activities. The functional outcome of these critical problem-solving activities is “a purposeful, organized direction toward a solution” (Heppner & Krauskopf, 1987, p. 401) and “adaptable consequences” (p. 401); conversely, the absence of goals and plans tends to be linked to “confusion” (p. 410) and “maladaptive” outcomes (p. 410). Thus, conceptually, problem-solving strategies would seem to be a critical component of clients’ resolution of their presenting problems.

Although Anderson’s model was used to guide item development in terms of how clients process information within their problem-solving strategies, the results of this study did not support the existence of Anderson’s four independent modes of processing. Rather, the results of the factor analysis revealed that the information-processing items loaded on one factor rather than four. These results suggest that there is a common dimension underlying the four modes of using knowledge, at least within the perceptual processes of therapy clients. It is possible that clients are not able to separate the four modes of processing information or that the different modes of using knowledge are so intertwined that it is impossible to separate them in reality. Perhaps Anderson’s (1983) theoretical model of adaptive control of thought needs to be reconceptualized to more accurately depict applied information processing. Although there does seem to be a great deal of value in identifying specific cognitive, affective, and behavioral operations in using knowledge, the results of this study suggest that other conceptual models may be needed to describe this process.

The second factor, PSSE, consisted of nine items and assessed people’s self-confidence in coping with their presenting problems. This construct has been found to play an important role in the problem-solving and coping literature (see Heppner & Lee, in press) that guided the development of the problem-solving self-efficacy items for this inventory. The results of this study confirm the utility of self-efficacy within problem solving, particularly within a problem resolution model in psychotherapy outcomes. Together, the first two factors assess two crucial problem-solving components, problem-solving knowledge and skills (or problem-solving know-how), as well as a motivational component (agency or self-efficacy) to persist in problem solving (see Bandura, 1986). Conceptually, these two components reflect essential ingredients related to problem solving and reflect a person’s potential to solve his or her presenting problems. Thus, the first two factors go far beyond a common psychotherapy outcome or a list of client symptoms; rather, they provide specific information about clients’ thinking and beliefs related to the manner in which they are attempting to resolve their presenting problems.

The results of the factor analysis of the items assessing degree of problem interference in daily functioning revealed that six items loaded on one factor, PIDF. This factor represents a basic and yet critically important component of problem resolution: the extent of clients’ impairment related to their presenting problems across a broad range of daily functioning domains. If counseling is effective, it should not only resolve the presenting problems but also reduce the interference of the presenting problems in a broad range of domains such as mood, thinking, relationships, and schoolwork. Thus, the PIDF provides a broadly focused assessment of problem resolution reflecting three of the coping effectiveness criteria of Zeidner and Saklofske (1996). Simply gathering information about symptoms (e.g., as with the BDI) does not typically assess the level of functioning across multiple domains of clients’ lives and may provide an incomplete picture. Thus, the PIDF provides a broader perspective of clients’ resolution of their presenting problems, resulting in more pervasive assurance that the problems have been resolved.

The fourth factor, GST, provides a general index of satisfaction with how counseling helped clients resolve their problems and, thus, a very global assessment of problem resolution. However, the client’s general satisfaction with the outcome of therapy also provides a basic assessment of “bottom-line data”: Was the client satisfied with the outcome of therapy? These types of data conceptually provide a macro-assessment of problem resolution. Functionally, such data provide therapists and agencies essential information to offer prospective clients or managed care organizations, which is becoming a prerequisite for obtaining contacts with managed care agencies (Cooper & Gottlieb, 2000).

Beyond the factor analyses, the initial estimates of construct validity (convergent validity) provide empirical support for Zeidner and Saklofske’s adaptational model as well as promising evidence for the PROS as an outcome measure. For example, the estimates of convergent validity suggest that the PROS is related to psychotherapy assessment, outcome, and problem-solving measures in expected ways. Specifically, at intake the PSS, PSSE, and PIDF were all correlated with three separate CASPER indexes reflecting the number and severity of clients’ presenting problems. Likewise, all four PROS factors were correlated with the CASPER individually tailored outcome assessment at the end of counseling as well as at 1-month and 6-month follow-ups. It is important to note that, in all cases, the correlations ranged from .57 and .85, indicating a moderate to strong association between these variables.

Moreover, all PROS factors were associated with the PSI in theoretically consistent ways before therapy, at the end of therapy, and at the two follow-ups, suggesting that more problem resolution on the PROS was consistently related to a more positive problem-solving appraisal in general on the PSI. Thus, the initial estimates of convergent validity provide strong evidence that the PROS is congruent with an individualized assessment of clients’ presenting problems and subsequent psychotherapy outcomes and a well-documented problem-solving measure in expected ways.

Other supportive evidence was found by examining associations between the PROS and counseling process measures. Typically, at
least two PROS factors were correlated in theoretically consistent ways with the counseling process measures at the end of counseling, as well as at the 1-month and 6-month follow-ups. For example, the PSS and GST were correlated with the working alliance (one of the best predictors of psychotherapy outcome; Orlinsky et al., 1994) and counselor credibility on the CRF-S (which has been found to relate to positive therapeutic outcomes; see Heppner & Claiborn, 1989; Hoyt, 1996) at statistically significant levels at termination as well as 1-month and 6-month follow-ups. Thus, client problem resolution, as reflected by the PSS and GST, is related to major counseling process measures that are often associated with or predictive of therapeutic outcomes.

In addition, all four factors on the PROS were found to be sensitive to change over the course of therapy as well as in two follow-ups, which is a central issue in outcome assessment (M. J. Lambert & Hill, 1994). Moreover, there was substantial agreement between clients’ and counselors’ ratings on three PROS factors (PSS, PSSE, and PIDF: 19%, 17%, and 22%, respectively), suggesting that clients’ perceptions matched to some degree with a knowledgeable therapist. Often, there is little or no congruence between counselor and client ratings, which has raised concern about the validity of various outcome assessment inventories (M. J. Lambert & Hill, 1994).

In summary, three initial estimates of construct validity suggest that the PROS relates to leading process measures as expected, is sensitive to measuring change over time as expected, and shares some agreement when assessed from different perspectives (e.g., counselors and clients). Zeidner and Saklofske (1996) postulated that problem resolution is a key outcome of coping effectiveness. The results of this study suggest that clients’ resolution of their presenting problems, as measured by the PROS, is positively associated with counseling process variables (i.e., the working alliance and counselor credibility), individualized counseling outcomes, and problem-solving appraisal; thus, client problem resolution seems to be related to counseling effectiveness.

There are a number of applications of the PROS that can inform the therapy process. Using the PROS as an intake assessment could provide both clients and counselors information about how a client is coping with his or her presenting problems and where the client might be encountering obstacles. In addition, the PROS can provide assistance with treatment planning by suggesting specific interventions (e.g., clients’ goal setting or problem-solving self-efficacy related to their presenting problems). This pretreatment information can then be used to develop treatment plans. Also, the PROS could provide a quick assessment of the degree of impairment due to presenting problems in daily functioning across a broad range of domains. Again, this type of intake information might suggest some of the most important foci for immediate or later counseling sessions. In short, with minimal time and effort for administration and scoring of the PROS, therapists from a broad range of theoretical orientations can obtain useful assessment information as well as inform the therapeutic process.

Perhaps most important, given that the PROS is sensitive to assessing therapeutic change and relates to process, outcome, and problem-solving measures in theoretically consistent ways, the instrument may be useful in psychotherapy research. For example, the PROS may provide a useful way of assessing therapeutic outcomes within a pretest–posttest or posttest-only design. Because the PROS provides a generic assessment of clients’ level of resolution of their presenting problems, the common metric allows client outcomes to be easily compared across clients, counselors’ presenting problems or diagnoses, time periods, or counseling interventions. In essence, the outcome data not only can be used as a “report card” for the public (Brickey, 1997) but also provide a database for a wide range of counseling process and outcome research.

The initial psychometric data on the PROS are encouraging and promising, but, as with any new inventory, more data are needed. The factor structure needs replication with larger samples, not only university students but a range of community samples. Although the PSS factor contained all positively worded items and the PSSE factor contained mostly negative items, this pattern does not appear to reflect simply response bias because such a confound runs counter to the validity estimates; additional research, however, might examine this issue by investigating associations with social desirability. Although gender differences were not found on the PROS in this study, research needs to continue to examine this issue. In short, additional normative information as well as reliability and validity estimates are needed from a broad range of samples across different socioeconomic levels, racial and ethnic groups, age groups, and types of mental health agencies. Although the initial validity estimates were encouraging, future research might extend these estimates through qualitative analysis of clients’ and counselors’ experiences of therapeutic outcomes and qualitative analyses investigating associations with other process and outcome measures. Moreover, future investigators might examine the predictive utility of the PROS at intake for different types of client problems, different types of client individual-differences variables (particularly negative affectivity; see Watson & Clark, 1984), and several process variables through the course of therapy.

In summary, the results of this study provide considerable evidence for applying Zeidner and Saklofske’s (1996) adaptive model of coping to counseling. We developed a non-symptom-based, multidimensional assessment of clients’ resolution of their presenting problems that may have considerable potential as a psychotherapy outcome measure. The PROS is a measure that offers a common metric across clients rather than an individually based assessment, the latter historically has presented numerous psychometric problems (see Calsyn & Davidson, 1978; M. J. Lambert & Hill, 1994). The results of the factor analysis identified internally consistent factors with good variability, reflecting different components of clients’ problem resolution. The initial validity estimates suggest that the PROS is related to process, outcome, and problem-solving measures in theoretically consistent ways. Moreover, clients’ perceptions are related to counselors’ perceptions on the PROS, suggesting some congruence across different perspectives.

The PROS is sensitive to change and thus functional as an outcome measure of psychotherapy. The PROS is brief, inexpensive, easy to administer, non–symptom focused, and multidimensional. Before therapy, it provides the therapist with information that offers treatment directions and provides core dimensions to be addressed in treatment plans. After therapy, the PROS provides a measure of therapeutic change or outcome regarding the reason clients sought assistance and enables comparisons across clients on the same metric. In addition, the PROS may have potential as a process measure (e.g., in assessing the impact of interventions...
during the course of therapy). Although more psychometric data are needed, the PROS appears to offer a different and promising perspective in assessing therapy outcomes, and Zeidner and Saklofske’s (1996) adaptive model of coping may be a useful framework with which to conceptualize coping. Perhaps most important, these results provide empirical evidence for the utility of a problem-solving construct, specifically client problem resolution, within psychotherapy outcome research.

References


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