CHAPTER 3

Problem-Solving Therapy

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INTRODUCTION AND HISTORICAL BACKGROUND

Problem-solving therapy (PST) is a cognitive-behavioral intervention that focuses on training in the adoption and effective application of adaptive problem-solving attitudes and skills. The general aim of this positive approach to clinical intervention is not only to reduce psychopathology but also to enhance psychological and behavioral functioning in a positive direction to prevent relapse and the development of new clinical problems, in addition to maximizing one's overall quality of life. Originally outlined by Thomas D'Zurilla and Marvin Goldfried (1971), the theory and practice of PST has been refined and revised over the years by D'Zurilla, Nezu, and their associates, as noted in the next section. Based on scores of randomized controlled trials by researchers around the world over the past several decades, PST has proven to be an appropriate and effective treatment for a highly diverse population of adolescents and adults with a wide range of psychological, behavioral, and health disorders (see reviews in Chang, D'Zurilla, & Sanna, 2004; D'Zurilla & Nezu, 2007; Nezu, 2004).

Two important trends in clinical psychology and psychiatry during the late 1960s and early 1970s served as the major impetus for the development of PST. The first trend was the growing emphasis in the nascent field of behavior modification on cognitive processes that facilitate self-control and maximize the generalization and maintenance of behavior changes (Kendall & Hollon, 1979). The second trend was the growing recognition that

the efficacy of clinical interventions might be facilitated by focusing more on developing positive skills and abilities that enhance social competence, including problem solving (Gladwin, 1967).

In 1971, D'Zurilla and Goldfried conducted a comprehensive review of the relevant theory and research related to real-life problem solving (later termed *social problem solving*; SPS; D'Zurilla, 1986; D'Zurilla & Nezu, 1982) from the fields of experimental psychology, education, and industry. Based on this review, these investigators constructed a prescriptive model of SPS that comprises two different, albeit related, components: (1) general orientation (later relabeled *problem orientation*; D'Zurilla & Nezu, 1982), and (2) problem-solving skills. *General orientation* is viewed as a metacognitive process that primarily serves a motivational function in SPS. This process involves the operation of a set of relatively stable cognitive–emotional schemas that reflect a person's general awareness and appraisals of problems in living, as well as his or her own problem-solving ability (e.g., challenge appraisals, self-efficacy beliefs, positive outcome expectancies). *Problem-solving skills*, on the other hand, refers to the set of cognitive and behavioral activities by which a person attempts to understand problems in everyday living and discovers effective "solutions" or ways of coping with such difficulties. In this model, four major problem-solving skills are identified: (1) problem definition and formulation, (2) generation of alternatives, (3) decision making, and (4) verification (i.e., evaluation of solution outcomes following solution implementation). In addition to describing the components of this model, D'Zurilla and Goldfried (1971) also presented preliminary guidelines and procedures for the clinical application of problem-solving training with patients who present with significant deficits in the ability to cope effectively with stressful problems in living.

In 1974, Arthur Nezu became a graduate student in clinical psychology under the mentorship of D'Zurilla at the State University of New York at Stony Brook, which began a lifelong research collaboration (and friendship). Their initial efforts led to confirmation of several of the theoretical tenets of the then-conceptual model of PST, including the benefits of training individuals to define problems better (Nezu & D'Zurilla, 1981a, 1981b), generate alternatives (D'Zurilla & Nezu, 1980), and make effective decisions (Nezu & D'Zurilla, 1979). Conducting research on the stress-buffering properties of effective problem-solving coping, together and individually, they later developed the relational/problem-solving model of stress described later in this chapter (D'Zurilla & Nezu, 1999; Nezu & D'Zurilla, 1989). Particularly instrumental in this research was George Ronan, a graduate student working with Nezu (e.g., Nezu & Ronan, 1985, 1988).

D'Zurilla and Nezu continued their collaboration by developing the Social Problem-Solving Inventory (D'Zurilla & Nezu, 1990), a self-report measure of real-life problem solving. This measure was subsequently revised,

based on a series of exploratory and confirmatory factor analyses, with the help of statistician Albert Maydeu-Olivares. The new version, known as the Social Problem-Solving Inventory—Revised (D'Zurilla, Nezu, & Maydeu-Olivares, 2002), has become the most widely used measure of this construct in the field. Based in part on such changes, the overall model of PST was also revised to include the following five dimensions: positive problem orientation, negative problem orientation, rational problem solving, impulsivity/carelessness style, and avoidance style (D'Zurilla, Nezu, & Maydeu-Olivares, 2004).

In the 1980s, Nezu and his colleagues, particularly Christine Maguth Nezu, focused their research activities on the relationship between problem solving and clinical depression, an effort resulting in the development of both a conceptual model of depression and an adapted version of PST for depression (Nezu, 1987; Nezu, Nezu, & Perri, 1989). Since Nezu's earlier outcome studies evaluating the efficacy of PST for major depressive disorder (e.g., Nezu, 1986c; Nezu & Perri, 1989), PST has come to be viewed as an efficacious, evidenced-based psychosocial treatment alternative for depression, as supported, for example, by recent meta-analyses of this literature (e.g., Bell & D'Zurilla, 2009; Cuijpers, van Straten, & Warmerdam, 2007). Another graduate student working with Nezu, Patricia Aréan, further adopted the basic PST for depression protocol for older adults, eventually demonstrating its efficacy for this population as well (e.g., Aréan et al., 1993).

Because depression and psychological distress are pervasive among individuals experiencing chronic medical illness, Nezu and Nezu, together with social psychologist, Peter Houts and other colleagues, developed a variety of PST treatment programs to help adults with cancer, as well as their families (e.g., Allen et al., 2002; Nezu, Nezu, Friedman, Faddis, & Houts, 1998; Houts, Nezu, Nezu, & Bucher, 1996). More recently, Nezu and Nezu have become interested in the potential efficacy of PST for the treatment of depression in patients with various cardiovascular diseases (e.g., Nezu, Nezu, & Jain, 2005), particularly heart failure (Nezu et al., 2006), as well as the treatment of personality disorders in collaboration with colleagues in the United Kingdom at the Universities of Nottingham and Liverpool (e.g., Mary McMurran, Conor Duggan, and James McGuire).

C. M. Nezu has also been instrumental in creatively adapting the basic PST protocol to treat special populations, including adults with mental retardation and concomitant psychopathology (e.g., C. M. Nezu, Nezu, & Aréan, 1991), sex offenders (C. M. Nezu, 2003), and sex offenders with intellectual disabilities (C. M. Nezu, Fiore, & Nezu, 2006). Additional applications by D'Zurilla, Nezu, and their colleagues include PST for weight loss (Perri, Nezu, & Viegener, 1992), PST as a means of improving adher-

ence (e.g., Nezu, Nezu, & Perri, 2006), and PST as a means of enhancing positive psychology goals (Chang & D'Zurilla, 1996).

Finally, one major outcome that has evolved from our work regarding the major theoretical underpinnings of PST, that is, human problem solving, is the application of problem-solving principles to the task of a therapist's case formulation and treatment planning in cognitive-behavioral therapy (Nezu, Nezu, & Lombardo, 2004; Nezu, Nezu, & Cos, 2007). Specifically, we have developed a structured method by which cognitive-behavioral therapists can improve their clinical decision-making skills with specific regard to better developing an accurate case formulation of a client's problems, and based on such a conceptualization, to develop a better overall individualized treatment plan.

PHILOSOPHICAL AND THEORETICAL UNDERPINNINGS

The goal of PST is to reduce and prevent psychopathology and enhance positive well-being by helping individuals cope more effectively with stressful problems in living. Depending on the nature of the problematic situation (e.g., controllability, aversiveness), effective coping may involve (1) changing the situation for the better (e.g., achieving a desired goal, removing an aversive condition, resolving a conflict) and/or (2) reducing the emotional distress generated by the situation (e.g., acceptance, tolerance, physical relaxation, helping others with similar problems). The theory upon which PST is based comprises two interrelated conceptual models: (1) the SPS model, and (2) the relational/problem-solving model of stress, which integrates SPS theory with Lazarus's relational model of stress (Lazarus & Folkman, 1984).

The Social Problem-Solving Model

As described earlier, the term *social problem solving* refers to problem solving as it occurs in the natural social environment (D'Zurilla & Nezu, 1982). As conceived here, SPS is a learning process, a general coping strategy, and a self-control method. Because solving a problem results in a change in performance in specific situations, SPS qualifies as a learning process (Gagné, 1966). Because effective problem solving increases the likelihood of adaptive coping outcomes across a wide range of problematic situations, it is also a general, versatile coping strategy. Finally, because SPS is a *self-directed* learning process and coping strategy, it is also a self-control method that has important implications for the maintenance and generalization of treatment effects (D'Zurilla & Goldfried, 1971; Mahoney, 1974; Nezu, 1987).

Definitions of Major Concepts

The three major concepts in SPS theory include (1) SPS, (2) problem, and (3) solution. *SPS* is defined as the self-directed cognitive-behavioral process by which an individual, couple, or group attempts to identify or discover effective solutions for specific problems encountered in daily living. As this definition implies, SPS is conceived as a conscious, rational, and purposeful coping activity. As we suggested earlier, the goals of problem solving may include changing the problematic situation for the better, reducing or modifying the negative emotions generated by the situation, or both of these outcomes. As conceived here, SPS can be used to cope with all types of problems in living, including impersonal problems (e.g., insufficient finances, transportation problems), personal/intrapersonal problems (cognitive, emotional, behavioral, health difficulties), as well as interpersonal problems (e.g., relationship conflicts and disputes). Moreover, rather than describing a singular type of coping behavior or activity, SPS represents the multidimensional metaprocess of idiographically identifying and selecting various coping responses to adequately address the unique features of a given stressful situation at a given time (Nezu & Nezu, in press).

A problem (or problematic situation) is represented by the imbalance or discrepancy between adaptive demands and the availability of effective coping responses. Specifically, a *problem* may be defined as any life situation or task (present or anticipated) that requires an effective response to achieve a goal or resolve a conflict, but wherein no effective response is immediately apparent or available to the person due to various obstacles. The demands in a problematic situation may originate in the environment (e.g., job demands, behavioral expectations of significant others) or within the person (e.g., a personal goal, need, or commitment). The obstacles might include novelty, ambiguity, unpredictability, conflicting demands or goals, performance skills deficits, or lack of resources. A problem might be a single, time-limited event (e.g., coming late to work, an acute illness), a series of similar or related events (e.g., repeated unreasonable demands from one's spouse or partner, repeated violations of curfew by an adolescent daughter), or a chronic, ongoing situation (e.g., continuous pain, loneliness, or chronic illness).

A *solution* is a situation-specific coping response (cognitive and/or behavioral) that is the product of the SPS process when applied to a specific stressful situation. An *effective* solution is one that achieves the problem-solving goal (e.g., changing the situation for the better, reducing the distress generated by the situation), and at the same time maximizes positive consequences and minimizes negative ones. The relevant consequences include personal and social outcomes, and both long- and short-term outcomes.

As defined here, SPS should be distinguished from *solution implemen-*

tation (D'Zurilla & Goldfried, 1971). These two processes are conceptually different and require different sets of skills. *Problem solving* refers to the process of *discovering* solutions to specific problems, whereas *solution implementation* refers to the process of *carrying out* those solutions in the actual problematic situations. Problem-solving skills are assumed to be generally applicable across situations, whereas solution-implementation skills are expected to vary across different situations depending on the nature of the problem and the specific solution. Because they are different, problem-solving skills and solution-implementation skills are not always correlated. Hence, some individuals might possess poor problem-solving skills but good solution-implementation skills, or vice versa. Because both sets of skills are required for adaptive functioning, it is often necessary in PST to combine training in problem-solving skills and solution implementation skills (e.g., social skills, parenting skills) to maximize positive outcomes (D'Zurilla & Nezu, 2007; Nezu, Nezu, & D'Zurilla, 2007).

Major Problem-Solving Dimensions

As we noted earlier, the original version of the present SPS model (D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1990) assumed that SPS ability comprises two major, partially independent components: (1) problem orientation, and (2) problem-solving skills (later referred to as "problem-solving proper" [e.g., D'Zurilla & Nezu, 1999] and more recently as "problem-solving style" [e.g., D'Zurilla & Nezu, 2007; D'Zurilla et al., 2002]). Based on this theoretical hypothesis, D'Zurilla and Nezu (1990) developed the Social Problem-Solving Inventory (SPSI), which comprises two major scales: the Problem Orientation Scale (POS) and the Problem-Solving Skills Scale (PSSS). Each scale includes positive items that are assumed to reflect "good" problem-solving ability, as well as negative items, which were assumed to reflect "poor" problem-solving ability. The assumption that problem orientation and problem-solving skills are different, albeit related, components of SPS is supported by data showing that the POS item correlation is high with the total POS score and relatively low with the total PSSS score, whereas the reverse is true for the PSSS items (D'Zurilla & Nezu, 1990).

Based on an integration of the original SPS model and subsequent empirical data generated by factor analyses of the SPSI, D'Zurilla et al. (2002; Maydeu-Olivares & D'Zurilla, 1995, 1996) developed a revised, five-dimensional model of SPS that comprises two different, albeit related, problem orientation dimensions and three different problem-solving styles. The two problem orientation dimensions include positive problem orientation and negative problem orientation, whereas the three problem-solving styles include rational problem solving (i.e., effective problem-solving skills), impulsivity/carelessness style, and avoidance style. Positive problem orienta-

tion and rational problem solving are constructive dimensions that increase the probability of positive outcomes, whereas negative problem orientation, impulsivity/carelessness style, and avoidance style are dysfunctional dimensions that are likely to disrupt or inhibit effective problem solving, resulting in negative personal and social outcomes.

Positive problem orientation is the constructive problem-solving cognitive set that involves the general disposition to (1) appraise a problem as a "challenge" (i.e., opportunity for benefit or gain); (2) believe that problems are solvable (positive outcome expectancies, or "optimism"); (3) believe in one's personal ability to solve problems successfully ("problem-solving self-efficacy"); (4) believe that successful problem solving takes time, effort, and persistence; and (5) commit oneself to solving problems with dispatch rather than avoiding them. In contrast, *negative problem orientation* is the dysfunctional or inhibitive cognitive–emotional set that involves the general tendency to (1) view a problem as a significant threat to well-being (psychological, social, behavioral, health), (2) doubt one's personal ability to solve problems successfully ("low self-efficacy"), and (3) easily become emotionally upset when confronted with stressful problems (i.e., low tolerance for frustration and uncertainty).

Rational problem solving is a constructive problem-solving style that is defined as the rational, deliberate, and systematic application of four major problem-solving skills: (1) problem definition and formulation, (2) generation of alternative solutions, (3) decision making, and (4) solution verification (D'Zurilla & Goldfried, 1971). Specifically, the rational problem solver carefully and systematically gathers facts and information about a problem, identifies demands and obstacles, sets realistic problem-solving goals, generates a variety of possible solutions, anticipates the consequences of the different solutions, judges and compares the alternatives, chooses the "best" solution, implements the solution, and carefully monitors and evaluates the outcome. Note that this dimension does *not* include the solution implementation skills that are also necessary for successful problem-solving performance in specific situations.

Impulsivity/carelessness style is a dysfunctional problem-solving pattern characterized by active attempts to apply problem-solving activities, but such attempts are narrow, impulsive, careless, hurried, and incomplete. A person with this problem-solving style typically considers only a few solution alternatives, often impulsively going with the first idea that comes to mind. In addition, he or she scans alternative solutions and consequences quickly, carelessly, and unsystematically, and monitors solution outcomes carelessly and inadequately.

Avoidance style is another dysfunctional problem-solving pattern characterized by procrastination, passivity or inaction, and dependency. The avoidant problem solver prefers to avoid or to put off problem solving,

waiting for problems to resolve themselves, or attempts to shift the responsibility for solving his or her problems to other people.

The five problem-solving dimensions we just described are measured by the Social Problem-Solving Inventory—Revised (SPSI-R; D'Zurilla et al., 2002). With this instrument, "good" SPS is indicated by high scores on positive problem orientation and rational problem solving, and low scores on negative problem orientation, impulsivity/carelessness style, and avoidance style, whereas "poor" SPS is indicated by low scores on positive problem orientation and rational problem solving, and high scores on negative problem orientation, impulsivity/carelessness style, and avoidance style. The five-dimensional model measured by the SPSI-R has been cross-validated in young adults (D'Zurilla et al., 2002), adolescents (Sadowski, Moore, & Kelley, 1994), and in a population of incarcerated sex offenders in the United Kingdom (Wakeling, 2007). Using translated versions of the SPSI-R, the model has also been cross-validated in samples of Spanish adults (Maydeu-Olivares, Rodríquez-Fornells, Gómez-Benito, & D'Zurilla, 2000), German adults (Graf, 2003), Chinese adults (Siu & Shek, 2005), and Japanese college students, community adults, and psychiatric patients (Sato et al., 2006).

A Relational/Problem-Solving Model of Stress and Well-Being

A major assumption underlying the use of PST is that symptoms of psychopathology (emotional, cognitive, behavioral, and interpersonal) can often be understood and effectively treated or prevented by viewing them as ineffective, maladaptive, and self-defeating coping behaviors (e.g., aggression, substance abuse), with negative personal and social consequences (e.g., anxiety, depression, low self-esteem, and impaired behavioral and interpersonal functioning; D'Zurilla & Goldfried, 1971). Following from this assumption, the theory of PST is also based on a relational/problem-solving model of stress and well-being in which the concept of SPS is given a central role as a general and versatile coping strategy that increases adaptive functioning and positive well-being, which in turn reduces and prevents the negative impact of stress on well-being and adjustment (D'Zurilla, 1990; D'Zurilla & Nezu, 1999, 2007; Nezu, 1987; Nezu & D'Zurilla, 1989).

The relational/problem-solving model integrates Lazarus's relational model of stress (Lazarus, 1999; Lazarus & Folkman, 1984) with the SPS model presented earlier. In that model, *stress* is defined as a type of person–environment relationship in which demands are appraised by the person as exceeding coping resources and threatening his or her well-being (Lazarus & Folkman, 1984). This relational definition of *stress* is very similar to the definition of a *problem* in SPS theory. Hence, it is reasonable to conclude

that a problem is also a "stressor," if it is at all difficult and significant for well-being. In the relational/problem-solving model, stress is viewed as a function of the reciprocal relations among three major variables: (1) stressful life events, (2) emotional stress/well-being, and (3) problem-solving coping.

Stressful life events are life experiences that present a person with strong demands for personal, social, or biological readjustment (Bloom, 1985). Two major types of stressful life events are major negative events and daily problems. A *major negative event* is a broad life experience, such as a major negative life change, that often requires sweeping readjustments in a person's life (e.g., job loss, death of a loved one, major illness or surgery). In contrast, a *daily problem* is a more narrow and specific stressful life event. Although major negative events and daily problems may develop independently in a person's life, they are often causally related (Nezu & D'Zurilla, 1989; Nezu & Ronan, 1985, 1988). For example, a major negative event, such as major heart surgery, usually creates many new daily problems for a person (e.g., pain, self-care problems, financial problems, diet changes). Conversely, an accumulation of unresolved daily problems (e.g., marital conflicts, job problems, excessive alcohol use, poor diet, lack of exercise) may eventually cause or contribute to heart disease and major surgery.

In this model, the concept of *emotional stress* refers to the immediate emotional responses of a person to stressful life events, as modified or modulated by cognitive appraisal and coping processes (Lazarus, 1999). Depending on the nature of stressful life events (e.g., aversiveness, controllability), cognitive appraisals, and coping behavior, emotional stress responses may be negative (e.g., anxiety, anger, depression) or positive (e.g., hope, relief, exhilaration, joy). Negative emotions are likely to predominate when the person (1) appraises a stressful event as threatening or harmful to well-being, (2) doubts his or her ability to cope effectively, and (3) performs coping responses that are ineffective, maladaptive, or self-defeating. On the other hand, positive emotions may compete with negative emotions and sometimes dominate when the person (1) appraises a stressful event as a significant "challenge" or opportunity for benefit, (2) believes that he or she is capable of coping with the problem effectively, and (3) performs coping responses that are effective, adaptive, and self-enhancing.

Emotional stress is an important part of a broader construct of *well-being* that also includes cognitive, behavioral, social, and physical functioning (Lazarus & Folkman, 1984). Hence, the relational/problem-solving model assumes that stressful life events, cognitive appraisals, and coping processes are likely to have a significant impact on well-being *in general* and, ultimately, on the person's adjustment status (e.g., psychological or health disorder vs. positive mental and physical health).

The most important concept in our model is *problem-solving coping*,

a process that integrates all cognitive appraisal and coping activities within a general SPS framework. A person who applies the problem-solving coping strategy effectively (1) perceives a stressful life event as a challenge or "problem to be solved," (2) believes that he or she is capable of solving the problem successfully, (3) carefully defines the problem and sets a realistic goal, (4) generates a variety of alternative "solutions" or coping options, (5) chooses the "best" or most effective solution, (6) implements the solution effectively, and (7) carefully observes and evaluates the outcome. Unlike Lazarus's relational model of stress (Lazarus & Folkman, 1984), which views problem solving as a form of *problem-focused coping* (i.e., aimed at changing the problematic situation for the better), problem solving is conceived in this model as a broader, more versatile coping strategy that may also function as a form of *emotion-focused coping* (i.e., aimed at reducing emotional distress and/or increasing positive emotions). The goals set for any particular problematic situation depend on the nature of the situation and how it is defined and appraised. If a situation is appraised as changeable or controllable, then problem-focused goals would be emphasized. On the other hand, if the situation is appraised as largely unchangeable or uncontrollable, then emotion-focused goals should be articulated.

The hypothesized relationships among the major variables in the relational/problem solving model of stress and well-being are summarized in Figure 3.1. As the figure shows, the two types of stressful life events in the model (major negative events and daily problems) are assumed to influence each other. For example a major negative event, such as a divorce, is likely to result in many new daily problems for an individual (e.g., reduced income, conflicts involving children, difficulty meeting new people). Conversely, an accumulation of unresolved daily problems in a marriage (e.g., conflicts or disagreements, differences in sexual needs) may eventually result in a divorce. Figure 3.1 also shows that in addition to influencing each other, both types of stressful life events are assumed to have a direct impact on well-being, as well as an indirect effect via problem solving. In general, stressful life events are assumed to have a *negative* impact on well-being. This negative relationship between stressful life events and well-being is well established (Bloom, 1985; Monroe & Hadjiyannakis, 2002). Moreover, a number of studies have suggested that an accumulation of unresolved daily problems may have a greater negative impact on well-being than the number of major negative events (e.g., Burks & Martin, 1985; DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Nezu, 1986b; Nezu & Ronan, 1985, 1988; Weinberger, Hiner, & Tierney, 1987). These findings suggest that it is important in PST to identify those problems that might be created by major negative events and to focus on solving these daily problems rather than coping with the major negative event itself.

In addition, our model assumes that problem solving influences the

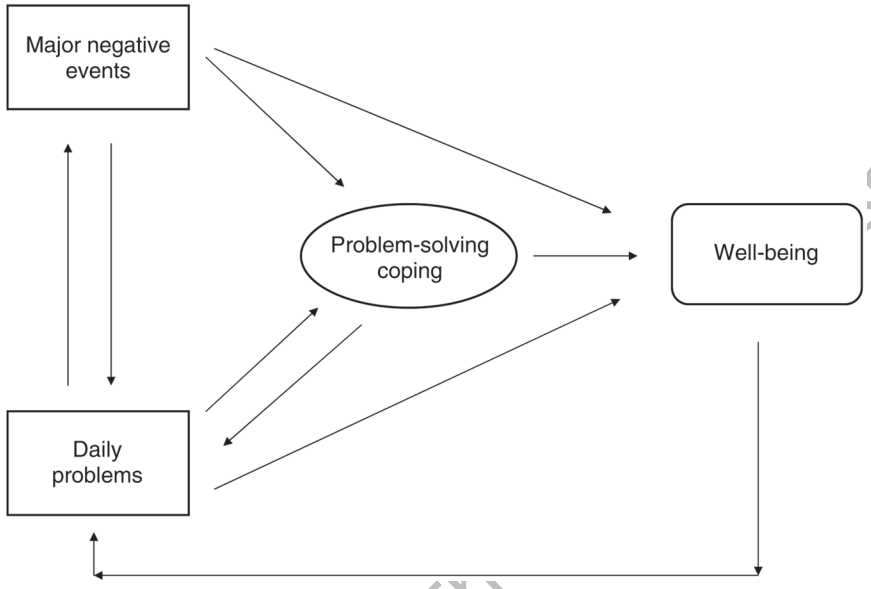

FIGURE 3.1. Relational/problem-solving model of stress and well-being. From D'Zurilla and Nezu (2007). Copyright 2007 by Springer Publishing Company, LLC, New York, NY 10036. Reprinted by permission.

relationship between stressful life events and well-being by functioning as both a mediator and a moderator. The model recognizes two different mediational hypotheses. The first hypothesis is based on the popular A-B-C behavioral model, where stressful life events (A) are assumed to set the occasion for problem-solving behavior (B), which in turn results in personal and social consequences (C) that affect well-being. If problem solving is ineffective, then the consequences for well-being are expected to be negative (e.g., anxiety, depression). On the other hand, if problem solving is effective, then the consequences are expected to be positive (e.g., less negative emotions, more positive emotions). The second mediational hypothesis assumes that SPS is an intervening variable in a causal chain in which stressful life events have a negative impact on problem-solving ability and performance, which in turn has a negative effect on well-being. In contrast with this A-B-C hypothesis, the arrows from stressful life events to problem solving are interpreted as negative causal relationships rather than prompting effects.

With regard to the moderator hypothesis, the major assumption is that stressful life events interact with problem-solving ability to influence well-

being. Specifically, the negative relationship between stress and well-being is expected to be stronger when problem-solving ability is low rather than high. In other words, poor problem-solving ability is assumed to increase the negative impact of stressful life events on well-being, whereas effective problem-solving ability is assumed to function as a "buffer" and reduce the negative impact of stress on adjustment. In this hypothesis, the assumption of a causal relationship between stressful life events and problem-solving ability is not necessary. In this respect, the moderator hypothesis is consistent with the first mediational hypothesis described earlier.

As Figure 3.1 depicts, the model also hypothesizes that a *reciprocal* relationship exists between problems and SPS. Specifically, in addition to the assumption that stressful events may have a negative impact on problem solving, the model also assumes that problem solving is likely to influence the frequency of daily problems. Ineffective problem solving is expected to result in an increase in daily problems, whereas effective problem solving is expected is to reduce the frequency of daily problems. Finally, the relationship between stressful events and well-being is also assumed to be reciprocal. Specifically, in addition to the direct and indirect impact of stressful events on well-being, the model also assumes that well-being is likely to have an impact on future stressful events. Specifically, negative adjustment outcomes (e.g., anxiety, depression, impaired social and behavioral functioning) are likely to result in an increase in daily problems and major negative events, whereas positive adjustment outcomes (e.g., hope, self-esteem, happiness, competence) are likely to reduce the frequency of these stressful events.

In addition to providing a theoretical rationale for PST, our model of stress and well-being also provides a useful framework for clinical assessment prior to PST. During assessment, the therapist identifies and pinpoints major negative life events, current daily problems, emotional stress responses, problem-orientation deficits and distortions, problem solving style deficits, and solution implementation skills deficits. Based on this assessment, PST is then applied to (1) increase one's positive problem orientation, (2) reduce one's negative problem orientation, (3) improve rational problem-solving skills, (4) reduce or prevent impulsive/careless problem solving, and (5) minimize the tendency to avoid problem solving. If necessary, other cognitive-behavioral methods (e.g., social skills training, exposure methods) are used to teach effective solution implementation skills and/or reduce anxiety that might be inhibiting effective solution implementation. The successful achievement of these goals is expected to increase adaptive situational coping and positive psychological, social, and physical well-being, while reducing and preventing the negative effects of stress on well-being and adjustment.

EMPIRICAL EVIDENCE

In this section, we review the empirical support for both the relational/problem-solving model of stress and well-being, and problem-solving therapy itself.

Empirical Support for the Relational/Problem-Solving Model of Stress

Over the past two decades, a large number of studies evaluating the correlation between various dimensions of problem solving and psychological distress and adjustment (e.g., depression, anxiety, well-being, optimism), using both behavioral outcome and self-report measures, have provided strong support for this aspect of the relational/problem-solving model. For example, ineffective SPS, particularly the negative problem orientation dimension (Nezu, 2004), has been found to be highly related to depression, anxiety, suicidal ideation, pain, and addictive behaviors (Nezu, 1986a; Nezu, Wilkins, & Nezu, 2004), whereas effective SPS is related to optimism, positive subjective well-being, and positive trait affectivity (Chang, Downey, & Salata, 2004). Although such studies support the view that SPS plays an important role in adjustment, the strongest support for the relational/problem-solving model comes from investigations specifically demonstrating that problem solving both mediates the relationship between stressful life events and personal–social functioning, and moderates the negative impact of stress on psychological well-being and adaptive functioning. Representative studies are described below.

Problem Solving as a Mediator

Folkman and Lazarus (1988) studied coping as a mediator of emotion in two samples of community residents—a middle-aged sample and an older adult sample. They interviewed these residents once each month for 6 months about how they coped with the most stressful situations that occurred during the previous week. Emotions were assessed at the beginning of a stressful encounter, during the encounter, and at the end of the encounter. Results in both samples showed that planful problem solving was the only coping strategy that was consistently associated with less negative emotions and more positive emotions. In their interpretation of these results, these investigators speculated that problem solving may have both a direct and an indirect effect on emotions in stress situations. The direct effect is that people are likely to feel better when they make an attempt to solve the problem that is causing distress. The indirect effect is that problem solving, when effec-

tive, can change the problematic situation for the better, which in turn has positive emotional outcomes.

Nezu and Ronan (1985), using path analysis, in a college student sample, tested a model that incorporated major negative life events, daily problems, SPS, and depressive symptoms. The results provided support for the following causal hypothesized relations: (1) Major negative life events increase the number of daily problems; (2) more daily problems result in more depression; and (3) problem solving mediates the relation between daily problems and depression; in other words, the magnitude of the relation between daily problems and depression is at least partly accounted for by problem-solving ability. These results were replicated in a similar study by Nezu, Perri, and Nezu (1987), which included clinically depressed subjects.

Kant, D'Zurilla, and Maydeu-Olivares (1997) examined the role of SPS as a mediator of the relations between daily problems and depression and anxiety among middle-aged and older adult community residents. A significant mediating effect was found in both samples, indicating that problem solving reduced the relation between daily problems and both forms of emotional distress. Further analyses indicated that negative problem orientation contributed most to this mediational effect. SPS was found to account for approximately 20% of the relation between problems and depression and about 34% of the variance between problems and anxiety. Overall, the prediction model that comprised daily problems and SPS accounted for 50% of the variance in depression and 50% in anxiety in both age samples.

Problem Solving as a Moderator

Nezu and his associates conducted several studies designed to evaluate the role of SPS as a moderator or buffer of the negative effects of major negative life events on psychological well-being. In one study that employed a college student sample, with depression as the dependent variable, Nezu, Nezu, Saraydarian, Kalmar, and Ronan (1986) found a significant interaction between major negative life events and problem-solving ability, which indicated that the relationship between such stressors and depression varied with the level of problem-solving ability. Specifically, the relationship was significantly weaker for individuals with effective problem-solving ability than for those with poor problem-solving ability. These findings were replicated by Nezu, Perri, Nezu, and Mahoney (1987) in a sample of individuals diagnosed with major depression. In another study focusing on college students, Nezu (1986d) found that SPS also moderated the impact of major negative events on state and trait anxiety. In a study focusing on cancer patients, SPS was found to moderate the negative effects of cancer-related

stress (Nezu, Nezu, Faddis, DelliCarpini, & Houts, 1995). Specifically, under similar levels of cancer-related stress, individuals with poor problem-solving ability reported higher levels of depression and anxiety than those with better problem-solving ability.

Because these studies are all cross-sectional in nature, rival hypotheses regarding the possible influence of emotional distress on problem-solving ability cannot be ruled out. Therefore, Nezu and Ronan (1988), in a prospective study with college students, attempted to predict depressive symptoms 3 months postbaseline, while statistically controlling for the level of depression at baseline. Their results confirmed that problem-solving ability moderates the impact of major negative events on later depressive symptoms even after they controlled for the prior level of depression.

In a more recent study, Londahl, Tverskoy, and D'Zurilla (2005) examined the role of interpersonal problem solving as a moderator of the relationship between interpersonal conflicts and anxiety in college students. The measure of interpersonal problem solving was a modified form of the SPSI-R (D'Zurilla et al., 2002) that focused specifically on interpersonal conflicts (i.e., disagreements or disputes between two people in a relationship) rather than problems in general. The results showed that negative problem orientation was a highly significant moderator of the relationship between romantic partner conflicts and anxiety symptoms. Specifically, the relationship between conflicts and anxiety was weaker when negative problem orientation was low rather than high.

Empirical Support for PST

Since the initial publication of the D'Zurilla and Goldfried (1971) model, clinical researchers around the world have effectively applied PST, both as the sole intervention strategy and as part of a larger treatment package, to a wide variety of problems and patient populations. These include major depression, dysthymia, schizophrenia, suicidal ideation and behaviors, social phobia, generalized anxiety disorders, posttraumatic stress disorder, caregiving problems, substance abuse, sexual offending, AIDS/HIV prevention, obesity, back pain, hypertension, distressed couples, primary care patients, persons with mental retardation, distressed cancer patients, recurrent headaches, personality disorders, and diabetes (D'Zurilla & Nezu, 2007). Recent meta-analyses of this literature basically support this perspective. Specifically, Malouff, Thorsteinsson, and Schutte (2007) conducted a meta-analysis of 32 studies, encompassing 2,895 participants, that evaluated the efficacy of PST across a variety of mental and physical health problems. In essence, PST was found to be as effective as other psychosocial treatments, although not significantly more so (effect size =

0.22). However, it was found to be significantly more effective than either no treatment (effect size = 1.37) or attention control placebo conditions (effect size = 0.54). This strongly suggests that PST is an efficacious clinical intervention. Parenthetically, these authors found that significant moderators of treatment outcome included whether the evaluated PST protocol included training in problem orientation (see Nezu, 2004; Nezu & Perri, 1989), whether homework was assigned, or whether a developer of PST helped conduct the investigation.

Cuijpers et al. (2007) conducted a meta-analysis of 13 randomized controlled studies evaluating PST for depression (total N = 1,133 participants). Based on their results (i.e., mean effect size for a fixed effects model was 0.34, and 0.83 for a random effects model), these authors concluded that although additional research is needed, "there is no doubt that PST can be an effective treatment for depression" (p. 9). However, they also noted substantial heterogeneity of results across investigations. Another meta-analysis, one that also focused exclusively on PST for depression but included seven more studies than the pool in the Cuijpers et al. meta-analysis, came to the same conclusion for both posttreatment and follow-up results (Bell & D'Zurilla, 2009). Moreover, although PST was not found to be more effective than alternative psychosocial therapies or psychiatric medication, it was found to be more effective than supportive therapy and attention control groups. Moreover, significant moderators of treatment effectiveness included whether the PST program included problem orientation training, whether all four problem-solving skills were included, and whether all five components were included (i.e., problem orientation and the four rational problem-solving skills). Another moderator that approached significance was whether the SPSI-R (D'Zurilla et al., 2002) was administered before treatment to assess strengths and weaknesses in SPS abilities.

Due to limited space in this chapter, we are unable to describe this literature in depth; therefore, we refer the reader to other sources (Chang, D'Zurilla, et al., 2004; D'Zurilla & Nezu, 2007; Gellis & Kenaly, 2008; Nezu, 2004) for descriptive reviews of these studies. However, we do wish to highlight the *flexibility* of PST regarding the types of patient populations addressed and methods of service delivery employed (Nezu, 2004). More specifically, not only does PST appear to be an effective cognitive-behavioral intervention, but it is also quite flexible and can be applied in a variety of ways—in a group format, on an individual basis, over the telephone, as the sole treatment modality, as part of a larger "treatment package," as a method to target caregiver populations in addition to the patients themselves, and as a means to enhance the efficacy of other intervention strategies when applied as an adjunct. The following are examples of these types of applications.

Group PST

An example of PST applied in a group format is an outcome study that evaluated the efficacy of PST for adults reliably diagnosed with unipolar depression (Nezu, 1986c). Specifically, depressed individuals in an outpatient setting were randomly assigned to one of three conditions: (1) PST; (2) problem-focused therapy (PFT); or (3) waiting-list control (WLC). Both therapy conditions were conducted in a group setting over eight weekly sessions, each lasting from 1.5 to 2 hours. The PFT protocol involved therapeutic discussions of patients' current life problems but did not include systematic training in problem-solving skills. Both traditional statistical analyses and an analysis of the clinical significance of the results indicated substantial reductions in depression in the PST group compared to both the PFT and WLC conditions. These results were maintained over the 6-month follow-up period. Further analyses revealed that PST participants increased significantly more than the other two groups in problem-solving effectiveness and in locus-of-control orientation (i.e., from external to internal). These improvements were also maintained at the 6-month follow-up. Overall, these results provide support for the basic assumption that PST produces its effects by increasing problem-solving ability and strengthening personal control expectations.

PST for Individuals and Significant Others

Conceptualizing the stress associated with adjusting to cancer and its treatment as a series of "problems" (Nezu, Nezu, Houts, Friedman, & Faddis, 1999), PST has been applied as a means of improving adult cancer patients' quality of life (Nezu, Nezu, Felgoise, McClure, & Houts, 2003). As with most chronic medical conditions, the diagnosis and treatment of cancer can serve as a major stressor and, consequently, can increase the likelihood that such patients will experience heightened levels of psychological distress (Nezu, Nezu, Felgoise, & Zwick, 2003). This study, known as Project Genesis, represents how PST can be applied on an individual and on a couple basis. In this project, adult cancer patients with clinically meaningful elevated scores on measures of depression and psychological distress were randomly assigned to one of three conditions: (1) PST (10 individual sessions); (2) PST-plus (10 sessions of PST provided to both the patient and a patient-selected "significant other" in order to evaluate the effects of including a caregiver as a "problem-solving coach"); and (3) a WLC. Results of pre–post analyses across multiple measures that included self-reports, clinician evaluations, and collateral ratings, provide strong evidence underscoring the efficacy of PST in general for this population. Moreover, these results were maintained at 6-month and 1-year follow-ups. Additional analyses provided evidence that including a significant other in treatment serves to enhance

positive treatment effects beyond those attributable to receiving PST by oneself. More specifically, at the two follow-up assessment points, on several of the outcome measures, patients in the PST-plus condition were found to continue to experience significant improvement compared to individuals in the PST condition.

PST as Part of a Larger Treatment Package

PST has also often been included as an important component of a larger cognitive-behavioral treatment package. As an example, García-Vera, Labrador, and Sanz (1997) combined PST with education and relaxation training for the treatment of essential hypertension. Overall, compared to participants comprising a WLC, treated patients were found at posttreatment to have significantly lowered blood pressure. These positive results were further found to be maintained at a 4-month follow-up assessment. Whereas studies evaluating the efficacy of a treatment package cannot provide data specific to any of the included intervention components, a subsequent analysis of their outcome data (García-Vera, Sanz, & Labrador, 1998) revealed that reductions in both systolic and diastolic blood pressure were significantly correlated with improvements in problem solving, as measured by the SPSI-R (D'Zurilla et al., 2002). Moreover, problem solving was found to mediate the antihypertensive effects of their overall stress management protocol, suggesting that PST was at the very least an important and active treatment ingredient.

PST for Caregivers

PST has not always been geared to help patient populations in a direct fashion. In addition to the effects on patients themselves, chronic illness and its treatment can have a significant impact on the lives of a patient's family members, in particular, a primary caregiver (Houts et al., 1996). The impact of the role of caregiver involves increased distress, physical symptoms, and feelings of burden. In this context, several researchers have applied PST as a means of improving the quality of life of caregivers across a range of medical patient problems (C. M. Nezu, Palmatier, & Nezu, 2004). For example, Sahler et al. (2002) evaluated the efficacy of PST for mothers of newly diagnosed pediatric cancer patients. After an 8-week intervention, mothers in the treatment condition were found to have significantly enhanced problem-solving skills associated with significant decreases in negative affectivity. Similarly, Grant, Elliott, Weaver, Bartolucci, and Giger (2002) found PST, provided to caregivers of stoke patients, to be effective in both decreasing caregiver depression and enhancing their problem-solving ability and caregiver preparedness.

PST as a Means to Foster Adherence and Compliance

Beyond application as the major treatment modality to decrease psychological distress and to improve functioning, PST has also been used as an adjunct to foster the effectiveness of other behavioral intervention strategies. For example, Perri et al. (2001) hypothesized that PST would be an effective means to foster improved adherence to a behavioral weight loss intervention by helping subjects to overcome various barriers to adherence, such as scheduling difficulties, completing homework assignments, or the interference of psychological distress. More specifically, after completing 20 weekly group sessions of standard behavioral treatment for obesity, 80 women were randomly assigned to one of three conditions: (1) no further contact (behavior therapy [BT] only); (2) relapse prevention training; and (3) PST. At the end of 17 months, no differences in overall weight loss were observed between relapse prevention and BT only conditions or between relapse prevention and PST. However, PST participants had significantly greater long-term weight reductions than BT only participants, and a significantly larger percentage of PST participants achieved "clinically significant" losses of 10% or more in body weight that did BT only members (approximately 35 vs. 6%). As such, these findings further highlight the flexible applicability of PST for a variety of clinical goals.

PST as a Secondary Prevention Strategy

Recent research has identified a strong association between problem orientation variables and levels of functional disability among persons experiencing low back pain (LBP). For example, van den Hout, Vlaeyen, Heuts, Stillen, and Willen (2001) found that a negative orientation toward problems was associated with higher levels of functional disability in persons with LBP. In addition, Shaw, Feuerstein, Haufler, Berkowoitz, and Lopez (2001), using the SPSI-R, found low scores on the positive orientation scale and high scores on impulsivity/carelessness and avoidant style scales to be correlated with functional loss in LBP patients. Based on such findings, van den Hout, Vlaeyen, Heuts, Zijlema, and Wijen (2003) evaluated whether PST provided a significant supplemental value to a behavioral graded activity protocol in treating patients with nonspecific LBP with regard to work-related disability. Their results indicated that in the second half-year after the intervention, patients receiving both graded activity and problem solving (GAPS) had significantly fewer days of sick leave than their counterparts who received graded activity plus group education. Furthermore, work status was more favorable for the GAPS participants, in that more employees had a 100% return to work, and fewer patients received disability pensions 1-year post-

treatment. These results point to the potential efficacy of PST as a *secondary* prevention strategy.

PST and Telephone Counseling

At times, access to university or hospital-based intervention programs can be limited for people living in rural or sparsely populated areas. In addition, due to other responsibilities and commitments such as child care, many medical patients may not have the ability to travel to a university or major medical center where such research is taking place. As such, we need to be able to identify additional means by which to reach such individuals and increase the clinical applicability of such interventions. One approach has been the use of the telephone to administer psychosocial protocols. Allen et al. (2002) conducted a study in which PST was delivered over the telephone as a means of empowering women with breast carcinoma to cope with a range of difficulties when diagnosed in midlife. Specifically, six PST sessions were provided to 87 women with breast cancer. The first and last sessions were in person, and the middle four were provided by a nurse over the phone. Whereas PST was found generally to be an effective approach, results were not as supportive of the efficacy of this method of providing PST *across all subjects*. More specifically, relative to the control group, patients receiving PST who were characterized as "poor problem solvers" at baseline experienced no changes in the number and severity of cancer-related difficulties. However, patients with average or "good" problem-solving skills at baseline compared to controls were found to have improved mental health as a function of the intervention. Collectively, these results provide partial support for this method of PST but suggest that a more intensive form of this intervention (e.g., more sessions, more face-to-face contact) may be required for individuals with premorbid ineffective coping ability. The Grant et al. (2002) study involving PST for caregivers of stroke patients noted previously also used a telephone counseling approach, providing further support for this mode of PST implementation.

Nonsupport of PST

Collectively, the majority of the outcome literature evaluating PST supports the notion that it is an efficacious clinical intervention for a wide range of patient populations and problems. A major exception to these findings is a multisite study by Barrett et al. (2001) that found problem-solving therapy for primary care patients (PST-PC) to be no more effective than a drug placebo condition regarding the treatment of adults diagnosed with minor depression or dysthymia. However, a closer look at PST-PC indicates that this model of PST does not include a treatment component focused on prob-

lem orientation variables; rather, it provides training exclusively in the four rational problem-solving skills (cf. Barrett et al., 1999). As mentioned earlier, the link between problem solving and depression lies particularly in the association between depression and negative problem orientation (Nezu, 2004). Coupling this notion with the results from a study by Nezu and Perri (1989) that demonstrated the superior effects of PST when training was included in problem orientation, it is possible that PST-PC represents a truncated version relative to the Nezu (1987; Nezu et al., 1989) model of PST for depression and may not address a significant reason why a problem solving–depression association exists. As such, PST-PC may be clinically less potent, thus explaining the lack of a treatment effect compared to a placebo condition in the Barrett et al. (2001) investigation. A more definitive conclusion awaits additional research; however, two of the meta-analyses described previously (i.e., Bell & D'Zurilla, 2009; Malouff et al., 2007) found that inclusion–exclusion of a major focus on problem orientation moderated the effect sizes regarding outcome (i.e., absence of problem orientation training led to poorer outcome).

CLINICAL PRACTICE

In this section, we provide a brief, step-by-step guide to conducting PST. It should be noted that although PST involves teaching individuals specific skills, similar to other cognitive-behavioral therapy approaches, it should be conducted within a *therapeutic context*. Because PST does focus on skills building, it can easily be misunderstood by the novice therapist as entailing only a "teaching" process. However, it is important for the problem-solving therapist to be careful not to (1) conduct PST in a mechanistic manner; (2) focus only on skills training and not on the patient's emotional experiences; (3) deliver a "canned" treatment that does not address the unique strengths, weaknesses, and experiences of a given patient; and (4) assume that PST focuses only on superficial problems rather than on more complex interpersonal, psychological, existential, and spiritual issues (if warranted). Thus, in addition to requiring the therapist to teach the patient certain techniques to cope better with problems, effective PST requires the therapist to be competent in a variety of other assessment and intervention strategies, such as fostering a positive therapeutic relationship, assessing for complex clinical problems, modeling, behavioral rehearsal, assigning homework tasks, and appropriately providing corrective feedback.

Structurally, PST training can be broken into three major foci: (1) training in problem orientation; (2) training in the four specific rational problem-solving skills (i.e., problem definition and formulation, generation of alternatives, decision making, solution verification); and (3) practice of these

skills across a variety of real-life problems. However, as noted in D'Zurilla and Nezu (2007), PST can be implemented in a variety of ways. For example, the guidelines provided in the next section actually depicts how PST might be conducted in a sequential fashion, such as that implemented in various treatment outcome studies (e.g., Nezu, Felgoise, McClure, & Houts, 2003; Nezu & Perri, 1989). In clinical settings, however, application of PST should be based on a comprehensive assessment of a given individual's (couple's, family's) problem-solving strengths and weaknesses. As such, not all training components may be necessary to include across all patients (for a more comprehensive discussion, see D'Zurilla & Nezu, 2007).

Training in Problem Orientation

The goal of training in this problem-solving component is to foster adoption or facilitation of a positive problem orientation. Clinically, we suggest that obstacles to adopting such a perspective include (1) poor self-efficacy beliefs, (2) negative thinking, and (3) negative emotions (i.e., a strong negative problem orientation).

Visualization is a clinical strategy included in PST to enhance a patient's optimism or sense of self-efficacy as a means of creating the experience of successful problem resolution in the "mind's eye" and vicariously experiencing the reinforcement to be gained. Visualization in this context requires individuals to close their eyes and imagine that they have successfully solved a current problem. The focus is on the end point—not on "how one got to the goal," but on "focusing on the feelings of having reached the goal." The central goal of this strategy is to have patients create and "experience" their own positive consequences related to solving a problem as a motivational step toward enhanced self-efficacy. In essence, it helps to create a visual image of "the light at the end of the tunnel."

To help overcome *negative thinking*, various cognitive restructuring strategies can be used, including those advocated in more formal cognitive therapy (e.g., Beck, 1995). For example, we often prescribe use of the A-B-C method of constructive thinking. With this technique, patients are taught to view emotional reactions from the A-B-C perspective, where A is the activating event (e.g., a problem), B is beliefs about the event (including what people say to themselves), and C is emotional and behavioral consequences. In other words, how individuals *feel and act* is often the product of how they *think*. Using a current problem, the PST therapist can use this procedure to diagnose negative self-talk and thoughts that are likely to lead to distressing emotions for a given patient. Such cognitions often include highly evaluative words, such as *should* and *must,* "catastrophic" words to describe non-life-threatening events, and phrases that tend to be overgeneralizations (e.g., "*No*body understands me!"). By examining self-talk, the

patient can learn to separate realistic statements (e.g., "I wish … ") from maladaptive ones (e.g., "I must have … ") as they pertain to problems in living. The patient can also be given a list of positive self-statements to substitute for or to help dispute the negative self-talk (as in the reverse advocacy role-play strategy).

We also suggest applying the *reverse advocacy role-play* strategy. According to this approach, the PST therapist pretends to adopt a particular belief about problems and asks the patient to provide reasons why that belief is irrational, illogical, incorrect, or maladaptive. Such beliefs might include the following statements: "Problems are not common to everyone. If I have a problem, that means I'm crazy," "There must be a perfect solution to this problem," or "I'll never be the same again." At times when the patient has difficulty generating arguments against the therapist's position, the counselor then adopts a more extreme form of the belief, such as "No matter how long it takes, I will continue to try and find the perfect solution to my problem." This procedure is intended to help patients identify alternative ways of thinking, then to dispute or contradict previously held negative beliefs with more adaptive perspectives.

To help overcome negative emotions, patients are taught to interpret such negative feelings as *cues* that a problem exists. In other words, rather than labeling their negative emotions as "the problem," they are helped to conceptualize such an emotion as a "signal" that a problem exists, then observe what is occurring in their environment to recognize the "real problem" that is causing such emotions. Once feelings such as depression, anger, muscle tension, nausea, or anxiety arise, the patient is instructed to use the mnemonic "*STOP and THINK*" as a means of inhibiting avoidance or impulsive problem-solving behavior. The THINK aspect of this phrase refers to the use of the various problem-solving steps. In addition, PST emphasizes that combining emotions and rational thinking (rather than relying solely on only one of these areas) leads to "wisdom," which represents effective, real-life problem solving. Note that accurately labeling a problem *as* a problem serves to inhibit the tendency to act impulsively or automatically in reaction to such situations. It also facilitates the tendency to approach or to confront problems rather than to avoid them.

Training in Rational Problem Solving

Problem Definition

This first rational problem-solving skill can be likened to "mapping" a guide for the remainder of the problem-solving process. The major focus of this task is to understand better the nature of the problem and to set clearly defined and reasonable goals. In other words, locating a specific destination on a map makes it easier to find the best route to get there. Training

in problem definition focuses on the following tasks: gathering all available information about the problem, using clear language, separating facts from assumptions, setting realistic problem-solving goals, and identifying current factors that prevent one from reaching such goals.

Generating Alternatives

In generating alternative solutions to a problem, PST encourages broad-based, creative, and flexible thinking. In essence, patients are taught various brainstorming strategies (e.g., "The more, the better"; "Defer judgment of ideas until a comprehensive list is created"; "Think of a *variety* of ideas"). Using such guides helps to increase the likelihood that the most effective solution ideas will ultimately be identified or discovered.

Decision Making

Once a list of alternative options has been generated, the individual is taught systematically to evaluate the potential for each solution to meet the defined goal(s). Training in this skill helps the individual use the following criteria to conduct a cost–benefit analysis based on the utility of each alternative solution: the likelihood that the solution will meet the defined goal, and that the person responsible for solving the problem can actually carry out the solution plan optimally; personal and social consequences; and short- and long-term effects.

Solution Verification

This last rational problem-solving task involves monitoring and evaluating the consequences of the actual outcome after the solution plan is carried out. PST encourages the individual to practice the performance aspect of solution implementation as a means of enhancing the probability that it will be carried out in its optimal form. Once the plan is under way, the patient is encouraged to monitor the actual results. Using this information allows individuals to evaluate the results by comparing the actual outcome with their expectations or predictions about the outcome. Depending on the outcome, individuals are then either guided to troubleshoot where in the problem-solving process they need to extend additional effort, if the problem is not adequately resolved, or to engage in self-reinforcement, if the problem is solved.

Supervised Practice

After the majority of training has occurred, the remainder of PST should be devoted to practicing the newly acquired skills and applying them to a

variety of stressful problems. Beyond actually solving stressful problems, continuous in-session practice serves three additional purposes: The patient can receive "professional" feedback from the therapist; increased facility with the overall PST model can decrease the amount of time and effort necessary to apply the various problem-solving tasks with each new problem; and practice fosters relapse prevention.

Clinical Illustration

In the following case, disguised to ensure confidentiality, PST was applied as the major clinical intervention for the treatment of depression.

Case Description

Bridget, a 57-year-old, retired probation officer and mother of three, previously had not sought counseling and reported a lack of any psychiatric history. In fact, Briget had always viewed herself as an extremely competent woman "who could be counted on to help others with their problems." She was self-referred due to extreme family stressors that focused primarily on her grown son Joe's cocaine addiction. At the time she sought counseling, she had symptoms of moderate to severe depression, with a profound sense of hopelessness.

Bridget and her husband Frank had been married for 38 years, a relationship that she described as fairly positive (e.g., "He's always right there with me"). She described their relationship with their other two children as close and supportive. During the initial session, Bridget described ongoing family struggles with Joe's addiction, which included his stealing behavior, frequent lies and excuses for his behavior, and, more recently, her former daughter-in-law seeking a court order to block Joe's unsupervised contact with his daughter due to the risk he posed. The son's reactions largely centered on seeing himself as a victim and had recently escalated in verbal aggression and property destruction (e.g., he recently had broken into the family home, stolen money, and called repeatedly with additional requests and insulting attacks toward family members when refused).

Initial Problem-Solving Assessment

Bridget was asked to complete the SPSI-R twice, in that there appeared to be discrepancies in how she rated her various problem-solving abilities. First, she was asked to complete the inventory with regard to how she *typically* solved problems. Next, she was asked to complete the measure with regard to how she viewed her problem solving related *specifically* to her family

problems. As predicted, there was a marked difference, in that Bridget's opinion of her own problem-solving efforts had been shattered by the ongoing difficulties with her son, and she was beginning to question seriously her own self-image, abilities, and judgment. This resulted in striking vulnerabilities in her problem orientation. Other clinical and self-report measures confirmed the presence of significant symptoms of depression, hopelessness, and concomitant anxiety.

Adopting a Positive Problem Orientation

Bridget's sarcastic sense of humor and outward appearance as a strong and rather fearless woman masked a strong sense of vulnerability that surfaced when she began discussing her son's addiction and the resulting family distress. For example, she stated, "I could always be counted on to roll my sleeves up and manage family problems effectively—but, now, I am a complete failure!" She indicated that past worries regarding her other two children were always "normal, " describing, for example, only minor problems with how they performed in school, whether they stayed out too late, or their difficulties with peers. Her other son Jim worked as a police officer in a different town, and her daughter Kerry, a single mother, lived nearby and was often involved in the family difficulties with Joe.

Bridget's partnership with her husband was such that she made the rules at home and he supported her in these decisions. When someone needed help, or something went wrong, she sprang into action, finding the right information, making the necessary calls, and implementing what had to be done. She described their ongoing attempts to help her son rehabilitate in this way and additionally stated that her daughter often tried to help in much the same manner. However, Joe made frequent excuses for his lack of follow through, accused others of not understanding, and always came home to demand that the family bail him out. It was clear from her description that Bridget was doing all the work for her son, and consistent with her style of solving problems, believed that if she only worked harder, Joe would finally understand and "fall in line." When her efforts persistently failed to effect change and actually led to a worsening of the situation, Bridget questioned her own ability and her view of herself ("now useless"), others ("not helpful or understanding"), her son ("incapable of change"), and the future ("quite hopeless").

The visualization technique was first used to help Bridget adopt a positive problem orientation. Specifically, Bridget was asked to envision a future where "the current problems involving Joe were solved." Although this strategy generally results in a person's ability to describe a fantasy image of a future in which current problems are solved, Bridget actually experienced

some initial difficulty and tearfully described seeing her son "laying in the morgue and having to identify the body." After being brought back to focus on a more positive image of the future (even if she currently thought it was unlikely), Bridget was able to describe a scene in which the entire family was at her home for a celebration and she had no worries of having money stolen or being lied to, and in which she was not compelled to control her son's interactions with others. Continuing to work with this strategy, Bridget was finally able to see herself as much less in need of controlling and managing everything, and was able to enjoy her family interactions. This represented a significant moment of insight for Bridget, in that she was able to see how her desire to "fix" things may have relayed a message to her son that she did not trust his ability or believe that he might effectively change his life. As a result, as the family became more and more involved in trying to solve things for him, his anger at their lack of confidence (as well as his own inability to see himself as even minimally instrumental) only served to increase his resentment and anger toward others. Armed with little else, Joe's addictive behavior was increasing. Bridget and Frank's well-meaning friends had suggested that they "cut him out of their life and refuse all contact." Although they had reached a point where they were willing to do this, it was doubtful that they would stay committed to such a plan. They viewed it as punishing themselves, because it would actually remove their son and granddaughter from their lives forever. Using cognitive change strategies to suggest greater flexibility in her orientation to the problem, Bridget's therapist was able to help her adopt the view that her past way of solving many other problems effectively was not working here, and that it would be better if she tried different alternatives that would place more responsibility on her son for change (e.g., Bridget was the one seeking counseling help, rather than her son, for his difficulties). Although this clearly involved changing her previous style of trying to "fix everything," the therapist emphasized many alternative ways for Bridget to communicate the need for Joe to take greater responsibility for his life, other than cutting him out of her life completely.

Defining the Problem

Bridget defined her "problem" as learning to allow her son to take more responsibility for his own rehabilitation and visitation with his daughter. She and her husband further defined the problem by stating some of the significant obstacles in the way, including the following:

- They had created a pattern in which Joe would always expect them to bail him out.
- He would be very angry with them and accuse them of not caring.

This always served to trigger their own sense of responsibility and, consequently, the need to provide money.
- Joe would try to engage his sister Kerry, if Bridget and Frank pulled back support.
- They were fearful that they would not be able to see their grandchild.

Generating Alternatives

Bridget, Frank, and Kerry generated as many alternatives as possible to improve the situation. Remembering that it was important to list as many alternatives as possible without judging, they were amazed to see the many possibilities other than giving up and cutting Joe out of their lives. These included (but were not limited to) the following:

- Provide a one-time investment of money for a rehabilitation program.
- Arrange visits between their granddaughter and their former daughter-in-law without Joe being present.
- Make attendance at family gatherings contingent on Joe's completion of drug rehabilitation.
- Turn off their telephone, so as not to receive difficult calls from Joe.
- Set up a family intervention meeting with a counselor.
- Attend family support groups to help commit to new contingencies they were putting into effect.
- Provide Joe with information to apply for Medicaid, as well as Medicaid-funded residential rehabilitation programs.
- Obtain a court order to prevent Joe's access to their home when high.
- Consult with local police to place a watch on their house when they were not at home.
- Participate in family therapy to help members change their patterns of taking all responsibility for Joe.
- Ask Joe's brother Jim to return for a family meeting and family counseling.

Decision Making and Carrying Out the Solution Plan

Whereas the listed alternatives do not include all of the family brainstorming activities, they do suggest many possible alternatives that the family had not previously considered. Better defining the problem was essential to their discovery of more effective solutions. For example, they had previously

framed the problem as their inability to help Joe change. As a function of PST, they realized that the degree of responsibility they were taking, while allowing Joe to see himself as a victim and blame them for not helping enough, was worsening the situation. In many ways, it seemed as if Joe was trying to show them that they overestimated their own competencies by not responding to their attempts to help. This made all of the family members "failures."

After weighing the various alternatives and conducting a cost–benefit analysis, the family combined several alternatives to construct the following overall solution plan. They offered Joe initial assistance to help him complete the necessary applications for medical coverage and to attend a residential drug rehabilitation program for which only he would be responsible. The program involved participating in a group residence, where Joe would receive psychiatric care and therapy, drug counseling, and supervised job assistance. In addition, he and other residents were responsible for chores in the home. A family meeting was held with counselors from the program to indicate to Joe that family members were changing their past methods of taking responsibility. All family members—including Jim, Kerry, and Joe's former wife—attended, presenting a united front. Moreover, family members made arrangements with Joe's former wife to visit with their grandchild, independent of Joe's current restrictions. Joe had one failed attempt at the group residence and one arrest for disorderly conduct before he finally completed a successful 10-month stay at the residence. He is currently attending community college and working in a restaurant to secure his own apartment. He has recently begun unsupervised visits with his daughter for brief periods of time.

Monitoring and Verifying the Outcome

Although Joe has a long rehabilitative road ahead, Bridget and Frank now view his difficulties as "*his* life story" rather than their responsibility. Bridget is less hopeless and views the problems with her son in a more realistic way: The problem is neither immediately solvable by her nor hopeless. Instead, she views problems as an inevitable part of life and family, and is quick to point out that there are "no perfect solutions." When her first attempt to manage a situation effectively was not successful, she did not immediately jump to the extreme of seeing the situation as hopeless. As such, Bridget is less impulsive and self-critical in her decision making and one small step closer to the positive visualization she created earlier in therapy. Moreover, her initially high level of depression has decreased dramatically.

SUMMARY AND CONCLUSIONS

PST has been described as a positive clinical intervention that reduces and prevents stress and psychopathology by increasing positive problem-solving attitudes and skills, and promoting broad positive changes in coping performance and psychological well-being across a wide range of problematic situations. Empirical support for the theory and practice of PST comes from two areas of research: (1) studies supporting the relational/problem-solving model of stress and adjustment, and (2) investigations evaluating the efficacy of PST with a variety of different clinical and vulnerable populations. Despite the impressive body of research in these two areas, there are still a number of areas for future researchers to tackle regarding the efficacy and applicability of PST. Some of these are noted below.

PST for Positive Functioning

More research is needed on the role of PST in enhancing *optimal* or superior functioning that maximizes one's quality of life and place in society. Such research could focus on fostering exceptional performance, achievement, creativity, and invention in various areas of life and work, such as business and industry, medicine, public service, sports, and marriage and family.

Adolescents and Their Parents

Studies have identified a significant relationship between SPS deficits and serious psychological and behavioral problems in adolescents, including depression and suicidal ideation (Sadowski & Kelley, 1993; Sadowski et al., 1994), aggression and delinquency (Freedman, Rosenthal, Donahoe, Schlundt, & McFall, 1978; Jaffe & D'Zurilla, 2003; Lochman, Wayland, & White, 1993), substance abuse (tobacco, alcohol, marijuana) and high-risk automobile driving (Jaffe & D'Zurilla, 2003). As such, we recommend that more research on PST programs be developed to address these specific problem areas.

Individuals with Cardiovascular Disease

In recent years, PST has been successfully applied as a method for helping patients and their caregivers cope with serious medical conditions and their treatments. Whereas successful PST programs have been developed for cancer patients and their caregivers (e.g., Nezu et al., 2003), there are no studies on PST for cardiac patients. Like cancer, cardiovascular diseases and recov-

ery from heart attacks and strokes require many difficult behavioral and lifestyle changes and adjustments, such as job adjustments, diet changes, taking daily medications, making time for exercise, and reducing stress in one's life. PST might be particularly useful and effective for helping cardiac patients cope more effectively with these difficult behavioral and lifestyle changes, thus improving their physical and psychological well-being (Nezu, Nezu, Cos, et al., 2006; Nezu, Nezu, & Jain, 2005).

Preventive Behavioral Health

A number of behavioral and lifestyle changes have also been recommended by medical professionals to *prevent* serious medical conditions, such as cancer and cardiovascular diseases. These changes include reducing and managing stress more effectively, changing eating habits, losing weight, stopping smoking, controlling alcohol intake, and increasing physical exercise. Hence, we recommend research on PST as a *preventive* intervention to help people overcome these obstacles to a healthy lifestyle.

Stress Reduction and Prevention in the Workplace

Except for senior citizens, most American adults spend at least half of their waking hours in the workplace. Hence, daily conflicts and problems at work are a major source of stress for most adults, resulting in adverse outcomes such as absenteeism, low productivity, occupational burnout, lost work days due to illness, high turnover rates, psychological disturbance, and health problems. PST can be an effective strategy for reducing and preventing stress and its negative effects in the workplace (D'Zurilla, 1990). However, there is a lack of research on the evaluation of PST workshops for managers, supervisors, and other employees. If they are proven to be effective, such workshops could have important psychological, health, and economic benefits for individual employees, business owners and executives, and society in general.

Mediators and Moderators of PST Outcomes

According to SPS theory, the major mediator of positive PST outcomes is SPS ability; that is, problem-solving training improves problem-solving ability and performance, which in turn produces more positive therapy outcomes. In support of this assumption, several outcome studies have found a significant relationship between improvements in SPS and positive changes in negative psychological conditions, including psychological stress (D'Zurilla & Maschka, 1988), depression (Nezu, 1987; Nezu

& Perri, 1989), and cancer-related distress (Nezu et al., 2003). However, more research is needed to identify *which* specific problem-solving dimensions are the most important mediators of PST outcomes for *which* particular patients with *which* particular adjustment problems. Whereas *mediators* are variables affected by PST that in turn influence or account for therapy outcomes, *moderators* are variables that interact with treatment to influence the magnitude of outcomes. Such variables to address might include age, gender, ethnicity, intelligence, educational level, and various personality traits. Research designed to identify moderator variables is important for determining which individuals might benefit most or least from PST.

New Methods for Implementing PST

The traditional mode of implementing PST in published outcome studies is face-to-face individual or group sessions lasting from 1 to 1½ hours. However, a few studies have successfully implemented innovative methods of service delivery, such as "telephone therapy" (e.g., Allen et al., 2002; Grant et al., 2002). Other possible alternative delivery methods include self-help manuals, bibliotherapy, and the Internet. To capitalize on advances in new communication technologies that might make PST more accessible, efficient, and cost-effective, more research is recommended on the efficacy of these alternative modes of intervention.

Concluding Comment

Since the publication of the original D'Zurilla and Goldfried (1971) conceptual paper, research on SPS and PST has increased at a rapid pace. In general, the results have provided significant support for the theory and practice of PST. Overall, research has indicated that effective problem-solving ability, assessed by several different measures, is related to positive psychological and behavioral functioning, whereas problem-solving deficits are associated with a variety of different forms of maladaptive functioning, including psychological distress, behavior deviations, and health problems. In addition, the evidence supports the perspective that PST is a useful and efficacious intervention for a variety of different clinical populations, including individuals with different kinds of psychological disorders, behavior disorders, and medical illnesses. Moreover, there is evidence that PST is also an effective preventive intervention with various vulnerable populations, such as individuals with high levels of life stress and those at risk for HIV. However, although the research to date has generally been supportive or promising, more work needs to be done to establish the true potential of SPS theory, research, and therapy.

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