CHAPTER 1

# Introduction

Building on work from June 1984, the Board of Directors of the National Association of Social Workers (NASW) in 2005 approved a dozen encompassing standards for practice among clinical social workers.

**Standard 1. Ethics and Values**
Clinical social workers shall adhere to the values and ethics of the social work profession, utilizing the NASW *Code of Ethic* as a guide to ethical decision making.

**Standard 2. Specialized Practice Skills and Intervention**
Clinical social workers shall demonstrate specialized knowledge and skills for effective clinical intervention with individuals, families, and groups.

**Standard 3. Referrals**
Clinical social workers shall be knowledgeable about community services and make appropriate referrals, as needed.

**Standard 4. Accessibility to Clients**
Clinical social workers shall be accessible to clients during nonemergency and emergency situations.

**Standard 5. Privacy and Confidentiality**
Clinical social workers shall maintain adequate safeguards for the private nature of the treatment relationship.

**Standard 6. Supervision and Consultation**
Clinical social workers shall maintain access to professional supervision and/or consultation.

**Standard 7. Professional Environment and Procedures**
Clinical social workers shall maintain professional offices and procedures.

**Standard 8. Documentation**
Documentation of services provided to or on behalf of the client shall be recorded in the client's file or record of services.

**Standard 9. Independent Practice**
Clinical social workers shall have the right to establish an independent practice.

**Standard 10. Cultural Competence**
Clinical social workers shall demonstrate culturally competent service delivery in accordance with the *NASW Standards for Cultural Competence in Social Work Practice*.

**Standard 11. Professional Development**
Clinical social workers shall assume personal responsibility for their continued professional development in accordance with the *NASW Standards for Continuing Professional Education* and state requirements.

**Standard 12. Technology**
Clinical social workers shall have access to computer technology and the Internet, as the need to communicate via e-mail and to seek information on the Web for purposes of education, networking, and resources is essential for efficient and productive clinical practice.

Implicit in these standards is the notion that clinical social workers should be accountable to their

clients and conduct ethical practice—their goal being to improve the quality of services. Toward this end, the standards help establish professional expectations that can assist social workers in monitoring and evaluating clinical practice. In particular, an interpretation of standard 2 is that clinical social workers should have knowledge and skills from research to evaluate the effectiveness of their work (Minahan, 1987).

Approaches for using research to assist in the assessment and evaluation of clinical practice include interviews with clients, systematic observation, forms and questionnaires, content analysis of case records and taped recordings, surveys, rating scales, and the collection of information before treatment begins and after termination (Vonk, Tripodi, & Epstein, 2006). Because clinical social workers cannot use only one approach to evaluate the effectiveness of work with all clients, they must have a repertoire of available methodologies. One methodology clinical psychologists and social workers have used is single-case design (Barlow & Hersen, 1984; Bloom, Fischer, & Orme, 2006; Jayaratne & Levy, 1979; Kazdin, 1992). Every clinical social worker should be familiar with the basic notions and procedures of this methodology. Moreover, clinical social workers can use single-case designs to assess and evaluate as well as to provide input for clinical decisions (Hayes, 1992).

## THE PURPOSE OF THIS BOOK

This book is an introduction to single-case design methodology for clinical social workers, students, and supervisors. The intent is to provide clinical social workers a perspective on the application of the methodology and the types and levels of knowledge it can generate to enable them to assess clinical problems and to evaluate practice. However, single-case design methodology cannot replace information obtained in clinical interviews and observations.

The three major objectives of this text are to:

1. present a basic model of single-case design methodology and selected variations of the model
2. show how the basic model can serve as a frame of reference for making clinical decisions with respect to assessing and evaluating the effectiveness of practice interventions
3. illustrate the utility of single-case design methodology in a variety of clinical settings.

The book refers to the term single-case design, rather than single-subject design or single-system design, for the following reasons:

- The term *case* refers to a single unit of analysis, that is, an individual, a couple, a family, or a group. These units coincide with the client units for clinical social workers.
- Although single-subject design was the preferred term when researchers first applied the methodology to social work in the 1970s (see for example, Jayaratne, 1977), single-case design is the preferred term in the current social work literature because it emphasizes application of the methodology to client units encountered in social work practice and because the word subject is synonymous with experimental research. Case is preferred by psychologists who developed the methodology in detail (see Hersen & Barlow, 1976). For purposes of this book, case and subject are synonymous.
- The term "subject" is misleading because it implies that the focus of investigation is the individual, when the methodology can be applied to other client units (that is, couples, families, and groups).
- Bloom and colleagues (2006) used single-system to refer to "one or more persons or groups being assisted by a helping professional to accomplish some goal" (p. 36), but their usage throughout the text appears to be synonymous with subject or case. Moreover, "system" implies an analysis of much more than a single unit, that is, an interrelationship among units. Single-case design methodology does not involve the study of interactions among units.

Authors, for example, Barlow and Hersen (1984), and Bloom and associates (2006), have adequately explained single-case designs in books from behavioral psychology and social work. However, although they have provided a

comprehensive presentation of many complex designs, they have not distinguished between those few designs that are useful to clinical social workers and those that are impractical. Moreover, their examples generally pertain to behavioral psychology and often appear inapplicable to much of clinical practice. Furthermore, their presentations appear to be more complex than necessary. They do not adequately distinguish the levels of knowledge produced, leading readers to believe that causal knowledge is more obtainable than it is. In addition, the authors do not clearly show how to make inferences from single-case designs to inform the assessment and evaluative decisions of clinical social workers.

## CLINICAL SOCIAL WORK

The following definition of clinical social work was accepted in January 1984 by the Board of Directors of NASW:

> Clinical social work shares with all social work practice the goal of enhancement and maintenance of psychosocial functioning of individuals, families, and small groups. Clinical social work practice is the professional application of social work theory and methods to the treatment and prevention of psychosocial dysfunction, disability, or impairment, including emotional and mental disorders. It is based on knowledge of one or more theories of human development within a psychosocial context.

The perspective of person-in-situation is central to clinical social work practice. Clinical social work includes interventions directed to interpersonal interactions, intrapsychic dynamics, and life-support and management issues. Clinical social work services consist of assessment; diagnosis; treatment, including psychotherapy and counseling; client-centered advocacy; consultation; and evaluation. The process of clinical social work is undertaken within the objectives of social work and the principles and values contained in the NASW *Code of Ethics* (Minahan, 1987).

This definition is broad and encompasses a variety of clinical services in public and private settings; a diversity of client populations with respect to such factors as income, race, social class, and so forth; a range of psychosocial problems; and use of different theories and assumptions about the relationship of the person to her or his situation. Clinical social workers may work in mental health agencies, hospitals, clinics, aftercare services; employee assistance programs (EAPs) for businesses, educational institutions, hospitals, factories, and the like; family therapy and family counseling agencies; criminal justice and juvenile institutional, probation, and parole facilities; child guidance clinics; and medical and public health facilities. Clinical social workers may engage in collaboration with other professionals such as psychiatrists, psychologists, and family counselors. Overall, clinical social workers function in a number of diverse human services agencies and organizations, as well as provide treatments or interventions (these terms are interchangeable) in private practice settings.

It therefore follows that clinical social workers deal with clients who represent different cultural and ethnic backgrounds and social classes. However, not all clinical social workers work with a vast range of clients. Some social workers in private practice may work exclusively with particular populations for example, male adolescents from middle-income families, focusing on problems of phobias, school adjustment, family relationships, and self-esteem. In contrast, clinical social workers employed in a mental heath clinic may work with a more diverse population. The eligibility requirements of the agency or setting in which social workers are employed tend to define client populations. Hence, clinical social workers in a Veterans Affairs (VA) neuropsychiatry hospital will work with veterans from the military who have psychiatric diagnoses and with their families. Social workers in a medical hospital may work primarily with cancer patients and their families, dealing with the realities and fears of cancer and its consequences. Clinical social workers in an EAP may focus on individual and small group interventions aimed at reducing stress in the workplace. Furthermore, clinical social workers in the child welfare system may focus on specific interventions, for example, family preservation services designed to prevent out-of-home placements, to increase the child management skills

of parents, and to eliminate child abuse and neglect, and clinical social workers may work in teams with other mental health professionals to provide counseling when disasters occur, such as Hurricane Katrina in New Orleans, and in the aftermath of such devastating events as the Columbine High School tragedy and the September 11th terrorist attacks.

Collectively, clinical social workers use different theories about personality and the environment and about changes or the prevention of changes in knowledge, feelings, attitudes, behaviors, skills, and interpersonal interactions. Some clinical social workers are eclectic and use a range of techniques depending on the client, problem, and situation. They may use behavior modification techniques, cognitive interventions, and ego psychological perspectives within an ecological framework. Other clinicians may use one major approach stemming from a particular theoretical point of view. For example, they may specialize in the use of group techniques for teaching clients interpersonal skills or they may focus on the therapeutic transaction, providing a means for their clients to understand the dynamics of human relationships with the clinical social worker, their families, and other significant groups.

### Tasks

Much of clinical social work practice progresses through interrelated phases. These phases or stages follow a problem-solving model that authors have incorporated into books about social work practice (Blythe & Tripodi, 1989; Hudson & Thyer, 1987; Vonk, Tripodi, & Epstein, 2006). The practice phases used by Vonk and colleagues—assessing the problem and formulating the treatment, treatment implementation and monitoring, and treatment evaluation—are used here because they are complementary to the basic single-case design model of baseline, intervention, and follow-up.

In the initial phase of practice with a client, the clinical social worker typically is involved in a number of tasks that are preliminary to the implementation of a treatment or intervention. The social worker gathers information about the client; the source of referral; the client's family, employment, and school history; and the nature and extent of the problems for which the client is referred, either by self or by others in voluntary or involuntary conditions such as mandatory treatment for child abusers or probationers. It is especially important for the clinical social worker to determine whether he or she can provide services appropriate to the client's problems. Hence, the social worker seeks information to make a judgment about what the problems are and whether he or she can engage the client in dealing with those problems. Many clients have issues related to finances, housing, and other basic needs, as well as with particular forms of illness, disease, and interpersonal communication and interactions. Hence, the clinical social worker must set priorities to the problems and deal first with those that are most immediately life-threatening or those that are most pressing because of environmental constraints through the courts and other community agents of control. During this phase, the clinical social worker uses his or her knowledge of theory, research about the effectiveness of interventions, and experience to formulate a treatment plan in cooperation with the client. The social worker devises a contractual arrangement, oral or written, to represent the mutual obligations of the clinical social worker and the client and operationalizes, to the extent possible, the treatment objectives and the means of achieving them. For example, treatment objectives for a client might include the reduction of anxiety and depression and an increase in positive interactions with his or her mother. The interactions may involve systematic desensitization for the client and counseling sessions with the client and his or her mother that include role plays about negative interactions and discussion about the ways in which both individuals might increase positive interactions.

Having decided which problems to deal with and determined an intervention plan, the clinical social worker, during the second practice phase, attempts to implement the treatment and to monitor compliance of the social worker and the client with the treatment contract. The social worker implements treatment procedures and makes observations about the degree to which the treatment is implemented as

planned. Furthermore, the social worker makes judgments about the degree to which he or she should continue the treatment or intervention procedures if the social worker and client attain treatment objectives. The third practice phase involves the termination of treatment as well as follow-up to determine whether the effects of treatment, if obtained, are persistent. This is the evaluation phase in which the clinical social worker discontinues the intervention if the social worker and client attain the treatment objectives but plan to observe any changes that occur with the disruption of treatment. The clinical social worker may withdraw an intervention because he or she has accomplished an objective but still work with the client on another problem (Blythe & Tripodi, 1989). For example, systematic desensitization might reduce a client's anxiety. The clinical social worker may withdraw that intervention; however, he or she may continue to work with the client and the client's mother through counseling and role plays to increase positive interactions between the client and mother. On the other hand, the social worker may terminate social worker–client contacts if there are no additional problems. However, the social worker may continue services in long-term care facilities where the purpose of treatment is not to change feelings and behaviors but to maintain the client's state of feelings and attitudes about care.

### Decisions

Clinical social workers make decisions-answers to questions pertaining to their major tasks-throughout the treatment phases. In the assessment and treatment formulation phase, the social worker answers questions such as the following:

- What is the client unit—an individual, couple, family, or group?
- What is the client unit's current status—living arrangements, occupation, or student status; identifying demographic variables; and social and psychological assets and deficits?
- How was the client referred to the social worker? Was the referral appropriate or should the client have been referred elsewhere?
- What are the client's problems and needs?
- Is the client sufficiently motivated to engage in the treatment process with the social worker?
- Can the social worker help the client resolve his or her problems, and does the clinical social worker have in his or her repertoire an intervention that will meet the client's needs?
- Can the social worker assist the client in prioritizing his or her problems or needs and can the social worker and the client agree on which problems to tackle?
- What are the treatment objectives for the designated problem? Do the clinical social worker and the client agree on those objectives?
- Can the social worker procure information about the nature and severity of the designated problems?
- Does it appear that the problem will continue and even become exacerbated without intervention? (Questions were adapted and modified from Vonk, Tripodi, & Epstein, 2006, p. 10.)

Decisions in the treatment implementation and monitoring phase focus on the delivery of the intervention, its appropriateness for the client, and whether progress occurs in realizing the treatment objectives. The social worker answers questions such as the following:

- Do the client, the clinical social worker, and others important for successful implementation understand what is expected in and between treatment sessions?
- Has the social worker implemented the intervention according to professional standards and the provisions of the treatment contract?
- Does the client appear to want to participate in the intervention plan? Is the intervention appropriate for the particular client? If not, should the social worker use another intervention?
- Are there any barriers to implementation? Can the social worker overcome these barriers?
- Should the social worker revise the initial assessment?
- If implementation of the intervention is inadequate, should the social worker modify the intervention or introduce a new intervention?

- Has there been progress in achieving the treatment objectives? If the social worker and the client have attained treatment objectives, should they terminate the treatment (or intervention)?
- If the social worker terminates the intervention, should he or she plan to follow up with the client to determine whether the attainment of treatment objectives persists? (Questions were adapted and modified from Vonk, Tripodi, & Epstein, 2006, pp. 87–88.)

The final phase of evaluation continues with questions about the achievement of treatment objectives, termination, and follow-up. The second and third phases are interrelated, but the third phase focuses more on the degree to which the intervention has been effective and continues to be effective. However, the clinical social worker also uses this phase to verify the initial assessment and possibly to uncover new problems that originally were not manifest. The social worker then makes decisions based on responses to questions such as the following:

- To what extent have the social worker and the client achieved the treatment objectives?
- If they have not achieved the treatment objectives, are there any discernible reasons why not? Was the treatment appropriate for the client?
- Was termination appropriate? Is there any evidence of client relapse?
- Has client progress persisted in follow-up with the withdrawal of the intervention?
- What level of knowledge did the intervention produce with respect to its relationship to the client's problems? Will this knowledge be useful in work with other clients?
- Did new problems emerge during the follow-up period?
- Should the social worker reinstitute the original intervention, a modified version of it, or introduce a new intervention for the client? (Questions were adapted and modified from Vonk, Tripodi, & Epstein, 2006, p. 151.)

## SINGLE-CASE DESIGN METHODOLOGY

Single-case design methodology includes the specification and measurement of variables that indicate the client's problems; the systematic recording of the extent and severity of the problems before the social worker offers interventions; the systematic recording of the extent of the problems during and after the treatment or intervention; the use of designs, graphic procedures, pattern analysis, or statistical analysis; and a conception of levels of knowledge and necessary evidence to make inferences about the attainment of knowledge levels. In its simplest expression, the complete basic model involves three successive phases: (1) baseline, (2) intervention, and (3) follow-up. In each phase, the social worker takes repeated measurements of variables that indicate the client's problems or needs at specified intervals over time. The clinician then observes patterns of variation in the variables in each of the phases and between phases.

At baseline, there are measurements without an intervention, and analyses of those observations can assist in the assessment of a client's problems. The baseline phase provides a benchmark of where the client is without intervention; it can indicate the extent and severity of problems as well as the degree to which they may be spontaneously increasing or remitting to a nonproblem state. The intervention phase provides information about the extent of changes in the frequency of the problem as the social worker provides intervention for the client. During the intervention phase, the clinical social worker observes the degree to which he or she implements the planned intervention and whether the measurement patterns of the problem variables are similar to or different from those at baseline. This observation allows the clinical social worker to infer the effectiveness of intervention in relation to intervention goals and indicates whether a problem is stabilizing, increasing, or decreasing. The social worker can implement the intervention phase in most practice situations in which repeated measurements over time are possible (see chapter 5), including after-care treatment, residential treatment, psychotherapy in private practice, medical social work in hospital care facilities, probation and parole supervision, marital counseling, group therapeutic paradigms, and so forth. The social worker also can implement the intervention phase in short-term treatment, but it is impractical in one-shot

crisis interviews, such as emergency intervention in natural disasters. In the follow-up phase, the clinical social worker continues to record the problem variables but terminates the intervention. This phase presumes that the clinical social worker has ethically withdrawn the intervention because both the client and clinical social worker have agreed to it or because the client has achieved therapeutic goals. Obtaining follow-up information requires planning and the use of extra resources by the social worker or the organization or agency in which the social worker is employed. This model of baseline, intervention, and follow-up is consistent with the phase model of direct practice, which incorporates a problem-solving approach, including assessment, planning interventions, implementing interventions, termination, and follow-up (Blythe & Tripodi, 1989).

The model presented in this book, a basic A-B-A design (Barlow & Hersen, 1984), is used because it is a logical extension of Cook and Campbell's (1979) interrupted time-series design applied to single cases, which may permit stronger inferences about the effectiveness of an intervention than the A-B design. The A refers to a phase without intervention, whereas B refers to intervention. Hence, the A-B-A design includes baseline, intervention, and return to baseline (the follow-up phase). The A-B design does not have a follow-up phase; hence, it does not permit analysis of what happens to the client after termination or withdrawal of the intervention. Because the clinical social worker can examine much information within the baseline, intervention, or follow-up phase for making decisions within the phases in addition to comparisons among phases, this book refers to those phases, rather than to the letters A and B.

This book intends to introduce readers to the A-B-A design model in detail; clinical examples in subsequent chapters illustrate procedures for analysis. However, the following example illustrates aspects of the model as well as potential problems in its application.

### Example

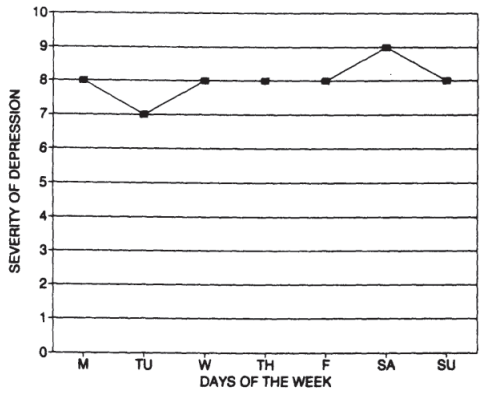
Suppose a clinical social worker in private practice is working with Jim, a 15-year-old, who is depressed and who thinks critically of himself in relation to others each day. Jim has low self-esteem and does not engage in ordinary school activities with his classmates. As part of the diagnostic or assessment process, which also includes interviews with Jim's family and study of referral documents and protocols, the clinical social worker concentrates on the problems of depression and self-critical thoughts.

In discussions with Jim, the clinical social worker devises two variables: (1) frequency of self-critical thoughts and (2) degree of depression. Together, the worker and Jim devise a plan for measuring these variables. The plan must be realistic and feasible for Jim to carry out through baseline, intervention, and follow-up phases. Jim defines a self-critical thought as one in which he thinks about how incompetent he is compared with others. The clinical social worker asks Jim to tally the number of times he has self-critical thoughts each day and to record those numbers for one week. The social worker also devises a self-anchored rating scale of depression in consultation with Jim. The scale ranges from 0 to 10, where 0 = no depression, 2 = very little depression, 4 = some depression, 6 = moderate depression, 8 = a great deal of depression, and 10 = extreme depression. The social worker also asks Jim to rate his feelings of depression every day for one week. At the end of one week—in the second session with the clinical social worker—the social worker constructs graphs to show baseline patterns of self-critical thoughts and severity of depression (Figures 1 and 2).

Clearly, Jim perceives he is depressed. He indicates a great deal of depression (level 8 on the scale) or higher every day of the week except Tuesday, which he rated 7. Furthermore, the same pattern exists for the frequency of self-critical thoughts, which Jim rated 10 or higher every day except Tuesday. Thus, there apparently is a strong association between the number of self-critical thoughts and depression. However, it is unclear whether self-critical thoughts come before or after the depression. Jim, however, indicated in an interview that he tends to become depressed after he is self-critical. Within the social worker's overall treatment plan, which includes discussions of incidents at home and at

figure 1

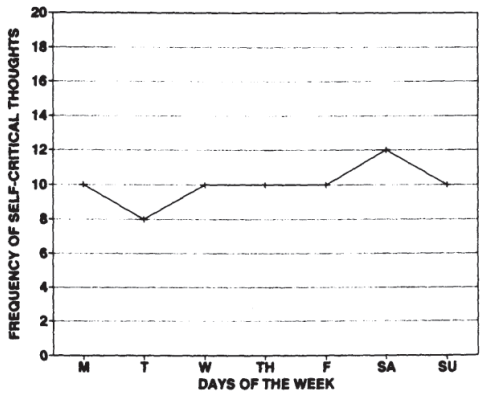
*Severity of Depression for One Week*




NOTE: M = Monday, TU = Tuesday, W = Wednesday, TH = Thursday, F = Friday, SA = Saturday, SU = Sunday.

figure 2

*Self-Critical Thoughts for One Week*

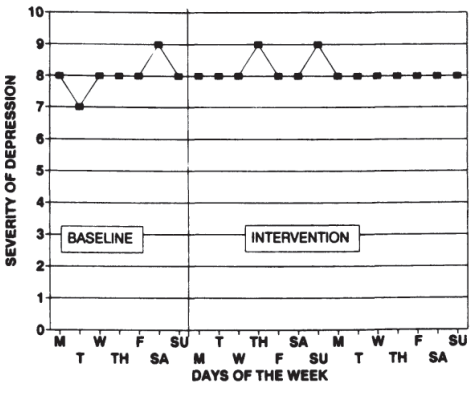



NOTE: M = Monday, T = Tuesday, W = Wednesday, TH = Thursday, F = Friday, SA = Saturday, SU = Sunday.

school as well as Jim's relationships with peers and family, the social worker decides to use an intervention designed to reduce Jim's self-critical thoughts and, in turn, possibly reduce his depression. The intervention is a cognitive intervention aimed at thought stopping and includes reframing the context of self-critical decisions. The social worker instructs Jim to change the comparisons from himself with others to only with himself whenever he has a self-critical thought and to think of successful performances he has had at school and in sports events. In addition, the social worker asks Jim to continue to record the frequency of self-critical remarks and perceived depression. After two weeks of intervention, the clinical social worker produces graphs to show the comparisons of intervention with baseline (Figures 3 and 4). Obviously, the frequency of self-critical thoughts (Figure 4) is reduced to 0 during Friday, Saturday, and Sunday—the last three days of the two-week intervention. However, the social worker notes that Jim's feelings of depression persist (Figure 3) and essentially are unchanged. The clinical

figure 3

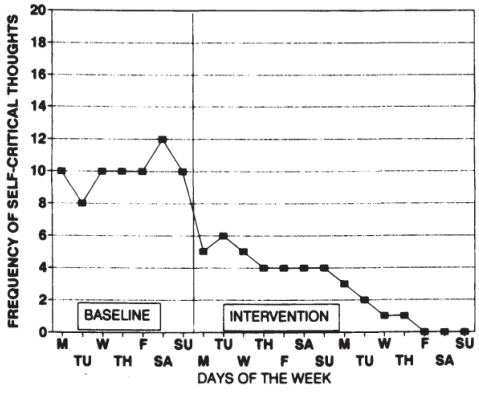
*Severity of Depression over Time, before and after Intervention*




NOTE: M = Monday, T = Tuesday, W = Wednesday, TH = Thursday, F = Friday, SA = Saturday, SU = Sunday.

figure 4

*Frequency of Self-Critical Thoughts over Time, before and during Intervention*




NOTE: M = Monday, T = Tuesday, W = Wednesday, TH = Thursday, F = Friday, SA = Saturday, SU = Sunday.

social worker learns that there is no simple relationship between depression and control of self-critical thoughts, contrary to what Jim believes. This observation implies that assessment of factors that might lead to depression should continue. Moreover, the social worker can eliminate the cognitive intervention directed toward Jim's self-critical thoughts in comparison with others. If Jim no longer invokes the intervention, he and the social worker can determine, by obtaining measurements of self-critical remarks on a daily basis during the follow-up period, whether there is a persistent change in the reduction of self-critical remarks.

As this example illustrates, single-case design methodology is merely a tool, but it can aid the social worker in making decisions pertinent to assessment and practice effectiveness. When the clinical social worker uses the full single-case design model and adds other design variations (see chapter 7), he or she can make inferences that approximate causal relationships between the intervention and designated outcomes or planned results. The emphasis in this book is on using the model and variations of it as a framework for making clinical decisions. However, the clinical social worker ultimately bases the decisions on his or her previous experiences, theory, and knowledge of interventions and on other information derived from clinical observations and interviews.

## Levels of Knowledge

Single-case designs produce or approximate three levels of knowledge: (1) descriptive, (2) correlational, and (3) causal (Tripodi, 1983). Descriptive knowledge consists of simple facts. For example, Jim's ratings of perceived depression for each day of the week constitute descriptive knowledge about the severity of his depression. Correlational knowledge is the description of a relationship between variables. In comparing baseline to intervention on self-critical remarks for Jim, it is apparent that, at baseline without intervention there is a greater frequency of self-critical remarks, but during the administration of the intervention, there is a reduction in the number of self-critical remarks, hence, there is a correlation between the intervention and the number of self-critical remarks. The relationship can be more aptly described as inverse or negative: As intervention is introduced, the frequency of self-critical remarks is reduced. If self-critical remarks increased as the intervention was introduced, the relationship would be considered direct or positive. The highest level of knowledge is causal, which includes correlational knowledge between an intervention and changes in a problem variable as well as evidence that no variables other than the intervention are responsible for the changes. Single-case designs cannot achieve causal knowledge with complete certainty; it can only be approximated. If the clinical social worker could withdraw the intervention for Jim and the result was a reversion to baseline when Jim had a relatively high number of self-critical remarks, the clinical social worker might obtain evidence for causality. This evidence would show that Jim would again eliminate self-critical remarks when the cognitive intervention is reintroduced.

What evidence does the clinical social worker need to obtain different levels of knowledge? The social worker can only have descriptive knowledge if there is evidence of reliability (consistency) and validity (accuracy) for the variables the social worker is measuring. These concepts are discussed in detail in chapter 3. Correlational knowledge exists when there are reliable and valid variables and when there is graphic or statistical evidence of a relationship among the variables. Procedures to determine the existence of correlational knowledge are discussed in chapter 5. Causal knowledge about an intervention depends on the following criteria:

1. The intervention precedes changes in problem variables. For example, the social worker introduces the cognitive intervention for Jim before he makes reductions in self-critical remarks.
2. There is a correlation or association between the intervention and the variables that indicate change. It is standard practice to conceive of the intervention as an independent variable and the change variables as dependent variables.
3. No other variables are responsible for observed changes in the dependent variable. These other variables are internal validity threats (Cook & Campbell, 1979) (see chapter 5).

## RELATIONSHIP BETWEEN CLINICAL PRACTICE AND SINGLE-CASE DESIGN METHODOLOGY

Single-case design methodology is insufficiently comprehensive to provide the basic information for all practice decisions. Rather, single-case design provides information that clinical social workers can use to make key decisions in practice. Figure 5 shows the relationship between information obtained from single-case designs and decisions clinical social workers make in practice. The baseline occurs during the assessment and treatment formulation phase; intervention (treatment), during the treatment implementation and monitoring phase; and follow-up, during the treatment evaluation phase. However, the decisions designated for the practice phases do not include all of the decisions clinical social workers make. Instead, they show that there is a direct relationship between information obtained from single-case design methodology and critical practice decisions. For example, at baseline, the social worker can obtain information about the measurement of a problem and its nature, severity, and persistence over time without intervention. The clinical social worker makes inferences in single-case design methodology by comparing measurements between phases (see Figures 1 and 4). For example, the social worker compares measurements he or she made during intervention with measurements on the same variable at baseline. If there are significant changes from problem severity to the reduction or elimination of the problem, the social worker infers that there is a relationship between the reduction of the problem and the introduction of the treatment.

## SINGLE-CASE DESIGN METHODOLOGY IN HISTORICAL CONTEXT

The introduction of single-case design methodology to social work practice occurred in the 1970s with the emergence of the empirical practice movement (Reid, 1994). Led by social

figure 5 *Relationship of Clinical Practice Decisions and Information Provided by Single-Subject Design Methodology*

| | Phases | | |
|---|---|---|---|
| Clinical Social Work Practice | Assessment and Treatment Formulation | Treatment Implementation and Monitoring | Treatment Evaluation: Termination and Follow-Up |
| Decisions | Is the designated problem severe and persistent and is treatment required? | Has the social worker implemented treatment and has the severity and nature of the client's problem changed? | Should the social worker withdraw treatment? Will the social worker and client successfully attain treatment objectives following withdrawal of the treatment? |
| | Phases | | |
| Single-Subject Design Methodology | Baseline | Intervention (Treatment) | Follow-Up |
| Information | Specification of treatment objectives into measurable problems. Measurement of nature, severity, and persistence of problem without intervention. | Measurement of changes in nature and severity of problem over time. Inferences about the attainment of objectives. Observations of treatment implementation. | Measurement of maintenance of changes. Provision of descriptive, correlational, and approximations to causal knowledge. Observations of the emergence of new problems. |

work practitioner/researchers and researchers based in academic settings, this movement sought to strengthen the scientific basis of practice by advancing the use of research methods in clinical practice, promoting the use of interventions with empirical evidence of effectiveness, and expanding the knowledge base for practice through the dissemination of studies carried out by social work practitioner/researchers. Single-case designs were among the research methods promoted by the movement. Their use, in addition to group research designs, was considered essential to developing a knowledge base of effective social work interventions.

The ideal of practice grounded in science was not new when the movement began. It was present at the dawn of the profession as reflected in the writings of early social work pioneers (Gellis & Reid, 2004). In its earliest years, social work faced great pressure to establish itself as a legitimate profession. The adoption of a scientific approach to service delivery was one way in which the profession sought to earn this legitimacy (Dore, 1990). Practice was scientific to the extent that caseworkers followed a scientific model in the delivery of services, an approach exemplified in the writings of Mary Richmond. In her landmark publication *Social Diagnosis*, Richmond (1917) delineated a casework paradigm of study–diagnosis–treatment. Study entailed the collection of social evidence, defined as "any and all facts as to personal and family history" (Richmond, 1917, p. 43), which was used to draw inferences about the case. The interpretation of these inferences led to a diagnosis, an indication of "the nature of the client's social difficulties" (Richmond, p. 43). The diagnosis informed the course of treatment, which was then tested with case data.

The psychoanalytic movement that dominated professional practice in the 1940s and 1950s also reinforced a scientific approach to practice (Gellis & Reid, 2004). The study–diagnosis–treatment paradigm delineated by Richmond was enriched by psychoanalytic theory, which provided insights for understanding the psychological and emotional aspects of cases and offered practitioners a range of treatment techniques. Whereas Richmond developed procedures for collecting and weighing the facts in a case, her approach was not directly tied to theory. The psychoanalytic movement in social work provided clinicians with a way to organize case data based on psychoanalytic principles and develop interventions based on those principles. Psychoanalytic theory was the forerunner to practice innovations and theoretical approaches that would dominate professional practice in the decades to follow.

During the psychoanalytic movement, efforts to strengthen the scientific basis of practice encompassed the development of casework typologies for defining the scope of practice. Some were based on the dynamics of the procedures used and others on goals and method (Germain, 1974). The typologies were intended to structure service delivery in clearly defined steps and to organize client and worker tasks toward a diagnostically based sequence of objectives. Pioneering work by Florence Hollis exemplified one such approach. Her 1964 publication *Casework: A Psychosocial Therapy* delineated an extensive typology of treatment procedures for describing the casework process. Her classification system was not an empirical base on which casework rested, but instead a tool for describing the procedures that were used when changes in cases occurred (Woods & Hollis, 2000).

Concern for the evidence base of practice became a focus of the empirical practice movement that began two decades later. The movement emerged against the backdrop of the "effectiveness controversy" and growing emphasis on accountability in the human services (Reid, 1994). Studies of casework services found limited evidence of effectiveness (Fischer, 1973, 1976; Meyer, Borgatta, & Jones, 1965; Mullen & Dumpson, 1972; Wood, 1978), raising serious questions regarding whether practitioners actually helped those they served. At the same time, decreasing resources for social programs increased competition among the helping professions, underscoring the profession's need to legitimate its services as worthy of public support (Witkin, 1996).

Group experimental research studies documenting effective practice approaches were needed;

however, master's degree-level practitioners lacked the expertise and resources for conducting experimental research (Witkin, 1996). Moreover, results from group experimental research studies were not easily translated into prescriptions for practice. Single-case designs required less time and resources to implement than group designs (Reid, 1994). Single-case design methodology could be taught to master's degree-level practitioners. Their use of the methodology to evaluate their work was one way in which the profession could develop a knowledge base of effective interventions. Studies conducted by practitioner/researchers would be deeply grounded in practice, address what clinicians were most interested in—what was best for addressing a problem in a particular case—and generate knowledge for informing practice with similar cases.

In the early 1970s, content on single-case designs was introduced into research and practice courses in social work education programs (Reid, 1994). Proponents of the method advocated for the board of the Council of Social Work Education (CSWE) to require graduate and undergraduate social work programs to prepare students to evaluate their practice. In 1982, CSWE adopted a new accreditation policy calling for the integration of content on the systematic evaluation of one's practice (Fischer, 1993). By the end of the following decade, a survey of research offerings at graduate schools of social work revealed that one-third emphasized single-case designs and self-practice evaluation in their curricula (Reid, 1994).

Initial studies examining whether students trained in the use of practice evaluation methods subsequently applied them to their practice produced disappointing results. The use of these methods did not differ between students taught to use them and those who were not (Briar, 1992). These dismal findings have been attributed, in part, to methodological limitations of these early studies, notably, their small sample sizes (Briar, 1992). A 1983 study with a large sample of practitioners who participated in an integrated research-practice sequence as part of their graduate training yielded more promising results; 40 percent of practitioners reported using one or more research designs (surveys, single-group pretest to posttest designs, and single-case designs) in their practice. Recent research examining social workers' use of each of four research methods (single-case designs, social surveys, qualitative methods, and quasi-experimental or experimental methods) revealed that more than half (56 percent) reported using at least one of the four methods (Marino, Green, & Young, 1998). Numerous studies have documented substantial use of components of the methodology such as specifying target problems and goals, describing goals in measurable terms, and monitoring client progress (Reid, 1994). Increased use of the methodology in practice is also evident in the growing number of published single-case design studies. A review of the practice research literature identified several hundred outcome studies that used single-case designs to evaluate social work interventions (Thyer & Thyer, 1992). A recent development supporting the dissemination of single-case design studies is the establishment of journals such as *Research on Social Work Practice* and the *Journal of Evidence-Based Social Work* devoted to publishing practice research studies.

The move to managed care in the human services and the concomitant emphasis on efficient and effective service delivery has fueled continuing interest in the use of practice evaluation methods in social work and related disciplines. Some managed care companies no longer provide reimbursement solely on the basis of the credentials of the service provider, instead requiring additional evidence of empirically documented outcomes (Thyer, 1996). Moreover, as a condition of continued funding, many federal and state agencies require documentation of the effectiveness of social work services. Indications that government authorities, insurers, and accreditation bodies will increasingly require evidence of treatment effectiveness implicates continued use of single-case design methodology to ensure that standards are met.

## ADVANTAGES OF USING SINGLE-CASE DESIGN METHODOLOGY

Practice issues and decisions to help clients are the basic priorities in clinical social work.

Clinical social workers will use single-case design methodology if it follows natural occurrences of practice and if they can incorporate it as a tool within practice. The methodology does not fit all practice situations; however, there are a number of advantages to using single-case designs.

Single-case designs are one of several methodologies that can be used for practice research. Group research designs can also be used for this purpose (see for example, Grinnell, 2001). The chief advantage of using single-case versus group research designs for practice research is that they generate knowledge that is specific to the case. Although there are similarities between cases encountered in practice, each is unique. Single-case designs allow practitioners to monitor and evaluate their practice given the unique attributes of the case. This information is lost with group research designs. Findings from group research studies are reported in aggregate; thus, individual differences are washed out. Although there are methodological limitations on the use of single-case designs for practice research, they are currently the most rigorous approaches available for monitoring and evaluating social work practice with individual cases (Mattaini, 1996).

A second advantage to using single-case designs is that they provide information to aid clinicians and supervisors in practice decision making. Use of the basic design can generate three levels of knowledge within and between phases of the components baseline, intervention, and follow-up (Table 1). Social workers can obtain descriptive knowledge regarding the existence, magnitude, duration, and frequency of a problem within each of the three phases. They can obtain correlational knowledge of the intervention and problem existence, magnitude, duration, and frequency by comparing observations in the intervention phase with baseline or with follow-up observations. Clinical social workers can infer causal knowledge, which is only approximate, based on information on all components plus other information, such as interviewing, to help rule out alternative explanations for changes associated with the intervention. The resulting information can be used to assist them in making decisions about assessment, treatment implementation, and treatment evaluation (see Table 1). In addition, supervisors can learn which problems social workers are focusing on and whether social workers have made progress in reducing or maintaining those problems. Supervisors might then use this information as a stimulus for discussing a particular client: Why is the intervention working? Is it appropriate for this client? Is the information reliable? What is the client's response when he or she sees a graph showing progress?

A third advantage to using single-case design methodology is that it provides clinicians with tools for enhancing their practice. Clinical social work practice entails the related tasks of identifying and prioritizing problems for work, setting intervention goals, and monitoring progress toward those goals. Using features of the methodology such as defining problems in measurable terms and systematically monitoring their occurrence can add precision to these tasks. By selecting indicators of client variables, the number of times a client is late for work, for

table 1 *Levels of Knowledge and Components of Single-Case Design*

| Level of Knowledge | Components of Single-Case Design |
|---|---|
| Descriptive | Obtained within any of the components: baseline, intervention, follow-up |
| Correlational | Obtained by comparing observations between intervention and either baseline or follow-up |
| Causal | Inferred by comparing observations among all three components and between additional design variations, such as the reinstitution of intervention, and by interviews |

example, as an indicator of his or her poor work performance, the clinician can be assured that he or she and the client share a common understanding of this problem. By systematically monitoring this variable over time, for example, a one-week interval between client and worker contacts, the clinician can determine problem frequency. The resulting information can be used to establish treatment goals in measurable terms, for example, to decrease the frequency of tardiness from four times a week to none at all over a three-week interval. Continued monitoring of this target during intervention and follow-up provides the clinician with information for determining whether agreed-upon goals have been met. Use of these systematic procedures affords the clinician greater confidence in observed changes than passive observations can provide.

A fourth advantage to using single-case design methodology is that it provides information that is useful to clients. As active participants in the change process and the ultimate beneficiaries of social work intervention, clients are entitled to information regarding the extent to which services they are receiving are contributing to the accomplishment of agreed-upon clinical objectives. Clinicians have an array of tools at their disposal for measuring case variables and sharing the results of measurement with clients. Standardized instruments can be used for this purpose (see for example, Corcoran & Fischer, 2000a, 2000b). The Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), for example, includes clinical cutoff points for determining whether the severity of reported depression is clinically significant. Using this instrument in the context of practice with a depressed client can help the client gain a greater understanding of the severity of his or her depression. Clinicians can also create self-anchored rating scales for use in addition to or in lieu of standardized measures. Doing so can be empowering for the client who is asked to describe, in his or her own terms, how a "5" on such a scale differs from a "1." The resultant measure reflects the client's subjective experience of depression and also provides a common language for the clinical social worker and client to discuss the client's depression. For example, the clinical social worker can ask: Was it a five in that situation or event? How did that differ from how you were feeling before or after that happened?

The resulting information can be used to show clients their scores on repeated measures of case variables with simple graphs. Graphic patterns observed prior to intervention may indicate that the problem was not as severe as the client originally perceived it to be and uncover additional problems or issues that warrant deeper investigation. On the other hand, graphic patterns may confirm the presence of a severe and persistent problem that warrants intervention, validating the client's experience of the problem and setting a benchmark against which treatment goals can be established. Because the collection of repeated measures of case variables involves a considerable investment of time and effort on the part of the client, showing the client graphs of repeated measures can help reinforce the value of monitoring and show the client that his or her efforts have not been wasted.

A fifth advantage to using single-case design methodology is that it produces information for the profession. Clinical social workers can accumulate a log of similar cases in which a particular intervention has or has not been effective. For example, a social worker may use a method of providing information about operations to close friends and relatives of a patient who is undergoing surgery to reduce the anxiety of the patient and his or her family and friends. The social worker may find that 18 of 20 people showed a reduction in anxiety; hence, he or she justifiably retains that particular intervention in the clinical repertoire. In this way, clinical social workers also can systematize their experiences in using different interventions for their clients. Blythe and Briar (1985) have suggested that practitioners can use single-case designs to develop models of empirically based practice, that is prescriptions of what should be done and what is likely to be effective in specific practice situations. Clinical social workers can also generate knowledge for the profession regarding the effectiveness of various social work interventions by publishing single-case design studies reflecting their work with clients.

## DISADVANTAGES OF USING SINGLE-CASE DESIGN METHODOLOGY

When used for practice research, single-case design methodology can only approximate causal knowledge. This is due to limitations on the extent to which internal validity threats (competing explanations for change) can be controlled (see chapter 5 for a discussion of internal validity threats and chapter 7 regarding procedures for minimizing these threats). We discuss one such threat here to orient the reader to the types of challenges that arise when single-case design methodology is used to approximate causal knowledge. The reader will recall that the methodology can be used to generate additional levels of knowledge that are useful for practice decision making.

Clients encountered in practice are often engaged in other helping networks for similar or related problems. When the client is receiving other interventions from additional sources, it is difficult for the social worker to determine whether observed changes are due to the intervention that he or she is providing or to other services the client is receiving. This introduces the internal validity threat of multiple treatment interference, the occurrence of other interventions that may account for changes observed in the problem of interest. In multidisciplinary settings, for example in a medical or psychiatric hospital, the client has contact with many professionals from which he or she may receive intervention. In a neuropsychiatry hospital, a patient may receive occupational therapy, group counseling, and individual counseling from a psychiatrist, or counseling from a clinical social worker. Interventions may overlap, precluding the study of one intervention. Social workers can deal with this problem by assessing the degree to which the evaluation methodology is appropriate (See chapter 5 for a discussion on the procedures for discerning the context of intervention). In assessing the problem, the social worker may find the following:

- No other discernible intervention conflicts with the one he or she is evaluating. That is, the intervention is unique, and the social worker can evaluate it using single-case design methodology.
- The intervention and one or more other interventions overlap so the social worker can only evaluate the joint effects of the interventions.
- The intervention and other interventions overlap, and the nature of the intervention the clinical social worker is providing is so ambiguous and diffuse that evaluation is unwarranted until the social worker can specify the intervention more precisely.

Another disadvantage to using single-case design methodology is that it does not fit all practice situations and clients. For example, social workers in EAPs that provide services on a time-limited basis may not be able to implement all of the phases of the design. The methodology may also be difficult to implement with clients who lack the ability to monitor their behavior, for example, those with cognitive impairments. It is likewise challenging to use the methodology with clients who can monitor their behavior but lack the motivation to do so, for example, in work with clients who are mandated to treatment but who lack readiness to examine their problem behaviors.

In settings that afford limited opportunities to implement all phases of the model, the clinical social worker can use available sources of data, for example, information provided by referral sources or other archival data to retrospectively reconstruct the baseline phase of the design and establish treatment goals. This will allow the client and worker to utilize available sessions to implement the intervention and monitor progress toward goals. In work with involuntary clients, the clinician can present the methodology from a strengths perspective, emphasizing that the choice to engage in the therapeutic process is the client's and discussing the ways in which monitoring can help the client gain a deeper understanding of the situations and events that brought him or her to treatment. The clinician may need to explore a voluntary client's lack of motivation to monitor their behaviors to determine their readiness to address the issue for which treatment was sought or possibly consider using other data collection strategies (for example, the use of available records or direct observation by others) to gather information on salient case variables.

A third disadvantage to using single-case design methodology is that it does not capture the whole view of the case. Although the social worker uses systematic procedures, such as the repeated measurement of variables at baseline, those measures do not represent the case in its entirety. Measurements are indices of the client's problems, selected for assessment and potential change through intervention. Any specification of a phenomenon, whether in practice (by prioritizing and focusing on specific features of a client in his or her situation) or in research (by systematically obtaining repeated measurements over time for a particular problem variable), reduces the phenomenon to a segment of its totality. However, the clinical social worker may still view the total situation of the client in his or her environment. The social worker can interpret in that context the specific findings of problem changes selected for intervention by the clinical social worker and the client.

A fourth disadvantage to using single-case designs is that many clinicians find it difficult, and perhaps impossible, to obtain baseline and follow-up measurements. In practice situations where it is unethical to withhold intervention, for example, in work with a client who is at imminent risk of harming himself or herself, the worker cannot delay intervention. Similarly, it is difficult to collect follow-up measurements with clients who prematurely terminate services. Maintaining a client's motivation to continue monitoring after clinical objectives have been met can also be challenging. The social worker may approximate baseline measurements through retrospection or by using available data from other sources when there is insufficient time to obtain measurements before intervention (see chapter 3 on measurement). In work with clients who are lost during the follow-up phase, the clinical social worker can initiate follow-up contacts to gain follow-up measurements through retrospection as in baseline (see chapter 6 on follow-up). To enhance client retention and motivation to continue collecting measurements of case variables through the follow-up phase, the social worker can stress the importance of follow-up data early on in the treatment process and acknowledge that motivation to continue monitoring may decrease when clinical objectives have been met.

The absence of baseline or follow-up data is problematic when the social worker uses single-case design methodology to approximate causal knowledge regarding whether changes observed in case variables resulted from intervention. For approximating this knowledge, reliable and valid time-series data gathered at baseline and follow-up are required. Although the worker cannot approximate causal knowledge in the absence of these data, he or she can obtain descriptive knowledge by studying trends in measurements within the intervention phase. Moreover, he or she can derive correlational knowledge from comparisons of baseline measurements and measurements taken during intervention (in the absence of follow-up data), and from comparisons between intervention measurements and measurements taken at follow-up (in the absence of baseline data).

## GUIDELINES FOR EVALUATING SINGE-CASE DESIGN STUDIES

In the chapters that follow, we present the basic single-case design model of baseline, intervention, and follow-up, and discuss considerations that inform the implementation of this model in practice. Students learning the methodology can benefit from reading published single-case design studies even at this early stage in the learning process. Doing so can raise awareness of how the basic design and variations of it are implemented across a variety of practice settings and issues. However, because readers have not yet learned the methodology, they may not be aware of the types of information that should be included in such reports. Using the material presented in subsequent chapters of this book and drawing from similar guidelines developed for assessing the quality of group research design studies in social work (Thyer, 1991), we developed guidelines for evaluating published single-case design studies. Although they may seem overwhelming at first, information summarized in the guidelines will be fully discussed in subsequent chapters of the book. Students and practitioners can use the guidelines to become informed readers of such reports and for considering the types of information to include when reporting findings from single-case design studies carried out in their own practice.

The guidelines are organized according to broad headings used in reports of research, including introduction, method, results, and discussion. Under each heading, we summarize the types of information that should be presented. Appendix 1 summarizes the guidelines below as a series of questions for readers to consider when reviewing published single-case design studies.

## Introduction

The study should introduce the clinical problem to be addressed. There should be a brief description of the case and the agreed upon targets for intervention. The intervention model or treatment techniques[1] for addressing these targets should be specified, and evidence of their effectiveness for addressing the target problem should be summarized. When available, data to support the efficacy of the intervention in work with similar cases should be summarized. If the study is exploratory (that is, it seeks to examine the utility of an approach that has not undergone efficacy testing), this should be explicitly stated and a rationale provided to support application of the intervention to the case in question. The introduction should conclude with a statement of intervention hypotheses. These should be tied to the level of knowledge sought (descriptive, correlational, and/or causal) and the design and procedures for generating this knowledge.

## Method

*Case.* The description of the case and its unique features are a critical component of single-case design studies. Enough information should be provided so that another clinician working with the same problem can determine the extent of similarities and differences between the case presented and those encountered in his or her practice. The unit of analysis should be specified (whether an individual, couple, family, or group is the focus of intervention). This section should provide details regarding demographic characteristics of the case and features of the case that are relevant to work with the problem described such as diagnostic information, prior occurrences of the problem and relevant treatment history, precipitating events that led to treatment, and prior or concurrent interventions the individual, couple, family or group is receiving. A brief description of the intervention setting should be provided. The scope of services (for example, job training and placement, supportive housing, mental health counseling) and the types, length, and duration of typical client contacts should be described. Factors that influence work with clients in the setting described should be discussed (for example, whether treatment is mandated or time limited).

*Case Variables and Their Measurement.* The target problem(s) to be addressed should be clearly stated. Conceptual definitions of identified targets for intervention and corresponding problem indicators for operationally defining each of these should be delineated. The report should include details regarding the measurement and data collection plan. For each problem indicator, a description of who will collect the data (the client, his or her significant other, a family member, or the clinician, for example), the time interval between measures (for example, on a per-episode basis immediately preceding or following problem occurrence, daily, episodically, or during preset intervals), and how measurements will be taken (for example, through direct observation, standardized instruments or self-anchored rating scales, the collection of behavioral byproducts, retrospective recall) should be provided. Plans for documenting repeated measures of problem indicators (for example, entering scores from a self-anchored scale in a log) should be described. Factors that influenced the design of the measurement plan should be addressed. Issues of relevance (the degree to which measured variables are tied to treatment goals), feasibility (the extent to which plans for measuring variables are realistic and can be carried out by the client and others engaged in the measurement process), reliability (the consistency of responses in measurement), validity (the extent to which measures adequately capture the meaning of the phenomenon under study), and nonreactivity (the extent to which the measurement

1. A treatment model is a well-specified and integrated approach for addressing a particular problem, whereas techniques refer to strategies that may be a subset thereof or intended for independent use.

process does not influence changes in behavior) should be addressed. Procedures for ensuring the reliability and validity of repeated measures collected during the study should be described.

*Design.* The report should describe the single-case design used (for example, baseline, intervention, follow-up, multiple baseline, graduated intensity, withdrawal-reversal). A rationale for the design choice should be provided. The level of knowledge sought (descriptive, correlational, and/or causal) and feasibility concerns relevant to implementing the design in practice should be addressed. The extent to which the design minimizes internal validity threats of history (variables or events such as natural disasters, changes in employment and occupational status, changes in family income and health outside of the intervention that occur between the first measurement of the variable at baseline and the last measurement during intervention), maturation (events that occur within the client due to changes in growth, psychological mechanisms, and illness), initial measurement effects (the influence of initial measurement on subsequent measurements of a problem variable), instrumentation (the possibility that the process of measurement is nonstandardized and observed changes are due to nonstandardization rather than to the intervention), statistical regression (the tendency for extreme scores to move toward the average, independent of intervention), multiple treatment interference (the occurrence of other interventions between baseline measurements and measurements taken during intervention), expectancy effects (changes in the problem variable that are due to client expectations about interventions and prognoses), interactions (the combined effects of history, maturation, initial measurement effects, instrumentation, statistical regression, multiple treatment interference, and expectancy effects), and other unknown factors should be discussed. Safeguards for minimizing these threats, such as the use of clinical interviews to identify other events that could affect changes in the problem variable, should be described. The duration of design phases and the factors that informed the timeframes selected, including the expected timeframe for documenting the presence, frequency, severity, or duration of the problem prior to intervention, the amount of time required to achieve clinical intervention objectives, and the amount of time observed changes are expected to endure, should be addressed.

*Intervention.* A detailed description of the intervention model and/or techniques for addressing the problem(s) identified in the introduction should be provided in this section. For each problem, clinical intervention objectives should be specified and these objectives should be tied directly to the operational definitions of the problem (for example, a reduction in (target) from (value) to (value)). The length of time for achieving each objective and the length of time gains are expected to endure should be described. A tie to the relevant literature on which these timeframes are based should be presented. For each objective, the intervention model or techniques for accomplishing the objective should be adequately described. Details of the intervention should include the contents of intervention; the intervenors (that is, the person or persons responsible for delivering the intervention); and the location, frequency, and duration of intervention. Information should be provided regarding how the clinician ensured intervention fidelity (that is, that the intervention was implemented as intended) and that it was implemented reliably (that is, consistently), for example, through the use of checklists completed by the social worker, the client, or both.

*Analysis.* Information regarding the procedures for analyzing the time-series data should be provided. Specific phase comparisons should be delineated (for example, baseline and intervention; intervention and follow-up; and baseline and follow-up). Although a wide array of statistical procedures are available for evaluating time-series data, the focus of this discussion is on the two statistical methods addressed in this book: the C statistic (Tryon, 1982) and the binomial test for horizontal baseline (Blythe & Tripodi, 1989). If the C statistic was used, evidence that the requirement of collecting a minimum of eight measurements has been met should be presented, and the value of the statistic and its corresponding probability level should be reported. If the binomial test was used for phase

comparisons, confirmation that horizontal stability was observed in the baseline phase of the study should be provided. Analyses should be appropriate to addressing study hypotheses and generating the levels of knowledge sought.

### Results

Findings from statistical analyses should be summarized in the report. Findings should be discussed in terms of their statistical and clinical significance, and in terms of how they influenced the course of intervention. The narrative describing study results should be accompanied by graphs that depict repeated measurements of case variables. Graphs should summarize information described in the narrative; clearly delineate baseline, intervention, and follow-up phases; label each time series when data for multiple variables are concurrently displayed; and indicate values corresponding to the attainment of clinical objectives in intervention and follow-up phases. The reader should be able to ascertain progress or deterioration that occurred in the case through visual inspection of the graphs.

### Discussion

This section should address whether study hypotheses were supported and describe alternative explanations (threats to internal validity) for study findings. The discussion should be limited to only those conclusions that can be made from the data. Implications of the research for clinical social work practice and practice-based research should be discussed. The authors should address whether study findings replicate findings from previous single-case design studies in similar agency settings and with similar cases. If the study reports findings from the application of a novel intervention approach that has not previously been evaluated, the reader should assess the replicability of the study from the standpoint of feasibility and the subsequent generation of knowledge for practice.

## ORGANIZATION OF THE BOOK

- Chapter 2, on assessment and problem formulation, provides a framework for prioritizing issues for work, an essential precursor to operationally defining the identified issues for measurement. Ethical considerations and cultural sensitivity in assessment and problem formulation are discussed.
- Chapter 3, on measurement, presents criteria for selecting simple but useful measures of agreed upon targets for intervention. It describes problems that are typical for clients in mental health, industry, and other clinical settings and discusses the measurement of problems such as absenteeism, depression, anxiety, productivity, and stress.
- Chapter 4 defines baselines, the first phase of the single-case design model, and explicates their purposes for assessment and evaluation. In addition, the chapter details the process of constructing baselines, including the plotting and analysis of graphic patterns, statistical analysis, and the illustration of practice decisions.
- Intervention, the second phase of the basic model, is defined and discussed in chapter 5. We provide methods for specifying interventions. In addition, the chapter illustrates comparisons of patterns of measurement at the intervention phase to the baseline phase and considers different patterns of change or no change with respect to clinical social workers' decisions.
- Follow-up, the third phase of the model, is defined and discussed in chapter 6. The chapter illustrates the process of measurement during follow-up, shows how to derive patterns that are obtained by comparing follow-up to intervention and to baseline, and discusses those patterns with respect to practice decisions.
- Chapter 7 presents three variations of the basic single-case design model: (1) multiple baseline design with clients, situations, or problems; (2) graduated intensity design; and (3) natural withdrawal-reversal design. We present advantages and disadvantages of using these designs and discuss inferences that the social worker can make about the effectiveness of interventions.

## TEACHING SUGGESTIONS

1. Locate a study in the social work literature that follows the basic single-case design model of baseline, intervention, and follow-up. Review the study with the class, limiting

the discussion to the following clinical aspects of the case:

- the case (individual, couple, family, or group) and the problem(s) for which intervention was sought;
- the intervention model and/or techniques for addressing the problem(s); and
- the phases of clinical practice exemplified by the design (for example, assessing the problem and formulating treatment, treatment implementation and monitoring, and treatment evaluation).

After reviewing these aspects of the case, break the students into small groups and distribute a copy of the study to each group. Assign each group one of the questions below. Initiate a discussion regarding methodological aspects of the study based on student responses to these items.

### Discussion Questions

- Describe the single-case design phases of baseline, intervention, and follow-up as applied to this case. How long was each phase? Why were these timeframes selected?
- How were identified problems defined and measured? Who collected the data?
- How were data collected during the study used for treatment decision making?
- How were the data analyzed? Briefly describe study findings and indicate whether they were statistically significant. Were they clinically relevant? What levels of knowledge were generated in this study (descriptive, correlational, and/or causal)?

2. Initiate a class discussion about the history of single-case design methodology in clinical social work. Why is this history important? Is social work still struggling to define itself as a legitimate profession? How does single-case design methodology factor into this dialogue?
3. Break the class into two groups. Ask one group to summarize the advantages of using single-case design methodology in clinical social work practice. Have the other group summarize the disadvantages of using the methodology. Ask each group to provide examples from their practice that illustrate the advantages and disadvantages identified. Initiate a discussion about the strengths and limitations of using single-case design methodology based on the material presented by students.

## STUDENT EXERCISES

1. Locate a single-case design study in the social work literature. The study you select will be used for this and subsequent exercises presented in this book. Using the guidelines described in the chapter and Appendix 1, describe and critically assess the introduction to the article and information provided regarding the case.
2. Describe a typical case encountered in your clinical practice setting. Could you use single-case design methodology to monitor and evaluate your work with this case? Why or why not?