In this book, we have attempted to bring together the best of stress and coping research with current issues regarding adjustment to infertility. We hope that these chapters will introduce a new theoretical tradition to research on infertility, a stress and coping framework. It is our conviction that this body of theoretical work can provide excellent direction for psychosocial infertility research in the next decade.

In this chapter, a number of the substantive and methodological issues facing researchers studying infertility will be discussed, and directions for future research and treatment offered. Infertility is a highly complex phenomenon, which increases the difficulty of building a body of scientific knowledge on this topic. It is the goal of this book, and of this chapter in particular, to illuminate the complexity of the issues and offer some solutions to those interested in psychological adjustment to infertility.
CONCEPTUAL ISSUES IN RESEARCH ON ADJUSTMENT TO INFERTILITY

We will discuss five conceptual issues relevant to research on adjustment to infertility: (1) Level of analysis (individuals, partners, couples); (2) conceptualizing adjustment as multifaceted and evolving; (3) positive effects of infertility; (4) gender differences in adjustment; and (5) the social context of infertility.

Level of Analysis

One can consider the issue of adjustment to infertility on three levels: the person who is diagnosed infertile, the spouse or partner of this person, or the couple who cannot conceive together. Each level of analysis warrants attention for several reasons, some of which are discussed below. Understanding individual-level adjustment is important because many forms of psychotherapy or intervention must be conducted with individuals. Sometimes the partner is unavailable or unwilling to enter couples' counseling. In other cases, infertility may evoke feelings that are tied to unique personal experiences in early development, including earlier losses. For example, an inability to conceive may evoke misplaced self-blame and guilt in someone who has been sexually abused or assaulted. Reactions to infertility that can be identified as reflecting unresolved personal intrapsychic issues would be best addressed in treatment of and research on the individual.

At present, it is unclear whether there are differences between individuals diagnosed as infertile and partners who are presumed fertile, but there are plausible rationales for expecting such differences. Although both parties are vulnerable to distress, holding oneself responsible for a fertile partner's inability to have biological children could be guilt-inducing, whereas perceiving one's infertile partner as responsible might engender anger, for example. Investigations of spouse reactions to an infertile partner are nonexistent, a gap that future research could address. Both studies of individual reactions to infertility and of spouse reactions to an infertile partner can be founded on the available stress and coping literature. Research on adjustment to the life events of one's partner, such as his or her job loss or diagnosis of heart disease, may offer valuable approaches for studying spouse reactions to infertility.

However, infertility is unusual in that it confronts the couple as a unit as well as the individuals involved. Regardless of the cause, members of the couple experience the inability to conceive jointly, and together they must make decisions about pursuing treatment, seeking alternatives such as
adoption, or choosing not to have children. Thus, research on life events that affect couples as a unit is relevant to studying adjustment to infertility. For example, studies of parents of terminally ill children may be of value (Adams, 1979; Chesler & Barbarin, 1987). Like infertile couples, these parents experience a loss that entails gradual adjustment. Events occurring for couples such as having a handicapped child, divorce, or the sudden death of a family member, although less analogous to infertility, may be relevant nonetheless. Thus, past research on these events (e.g., Benson & Gross, 1989; Lehman, Wortman, & Williams, 1987) is worth considering as it pertains to understanding adjustment to infertility.

In addition, work on marital distress is pertinent to infertility. Because infertility poses threats to the couple’s joint goals and plans, it may disrupt marital functioning and cause significant marital distress. Studies of couples’ reactions to infertility are complicated by the fact that assessment tools and statistical techniques for studying couples in general are still under development. However, much progress is being made in both theory and research on couples that can inform infertility research (e.g., Fincham & Bradbury, 1990; Huston & Robins, 1982; Kelley, Berscheid, Christensen, Harvey, Huston, Levinger, McClintock, Peplau, & Peterson, 1983; Kenny, 1988; Rusbuldt, Johnson, & Morrow, 1986).

To summarize, infertility represents goal blockage for the couple as well as the individuals involved. Each partner responds to it in light of his or her own vulnerabilities, psychological resources, personal predispositions (e.g., beliefs and attitudes) and so forth. In turn, the reactions of each individual affect the functioning of the couple as they face decisions regarding what to do in seeking to be parents. To gain a greater understanding of adjustment to infertility, researchers must study the interrelationship of the couple as a unit and of each individual’s role within it.

**Conceptualizing Adjustment as Multifaceted and Evolving**

A problem that plagues stress and coping research is that of defining successful adjustment. This issue faces infertility researchers as well. Is an infertile woman with considerable emotional distress less successfully adjusted than an infertile woman whose medical condition is the same but who experiences less distress? Is it maladaptive to become severely depressed for a period of time if one later returns to, or exceeds, earlier levels of functioning? Is an infertile man who refuses to adopt a child, despite his strong desire to have one, less well-adjusted than a man who agrees to pursue adoption with his partner? These and similar questions emerge when the issue of adjustment is addressed.

To date, the most common indicators of adjustment in the literature
on infertility are emotional distress and psychiatric symptomatology. One way to define adjustment is to posit that levels of symptoms or distress above norms or cutoffs for psychiatric samples indicate problems in adjustment. However, as many researchers have pointed out, high distress, at least temporarily, may be reasonable in coping with a major loss (Wortman & Silver, 1987). The more appropriate indicator of maladjustment would seem to be consistently high distress over a fairly long period of time without any indication of reduction, particularly if such distress impedes functioning in one's central roles.

Moreover, other facets of adjustment seem equally important. For example, permanent loss of self-esteem, or stable feelings of helplessness and lack of control in multiple domains of living, may be signs of maladjustment. Persistent problems in social relationships or chronic marital strain may also warrant attention as indicators of difficulties in adjustment. Thus, infertility researchers must conceptualize multiple facets of adjustment, and assess them in single studies, to determine the extent to which each facet is affected by the experience of infertility. As stress researchers have frequently noted, an individual may be well-adjusted in some respects and poorly adjusted in others. Moreover, some aspects of adjustment may require the trade-off of others. For instance, managing emotional distress may interfere with effective action or problem-focused coping (Carver, Scheier, & Weintraub, 1989). In the case of infertility, stressful treatments may be discontinued in order to alleviate or control the emotional distress they cause.

McKwan, Costello, and Taylor (1987) investigated dimensions of adjustment in 62 women and 45 men who visited a Canadian infertility clinic. Nine measures were analyzed to develop three components of adjustment. They were emotional and social adjustment (combined), sexual adjustment, and alcohol consumption. This approach represents a step in the right direction for infertility researchers, although the particular measures used may not have been comprehensive enough and, ideally, a larger sample would be used for factor-analytic procedures. With the use of additional measures, it is likely that emotional and social adjustment would be distinguished. In addition, the exact nature of the third factor is unclear and requires follow-up.

The stress and coping framework underlying this volume conceptualizes adjustment to stress as multifaceted, varying over time, and as sometimes involving compromises. Lazarus and Folkman (1984) distinguish the effects of stressful situations as either immediate or long-term. Long-term effects are in three categories: (1) Morale or well-being; (2) somatic health/wellness; and (3) social functioning. A response to stress that involves increased use of substances, such as alcohol or drugs, may provide
benefits to morale but accompanying risks to somatic health and possibly to social functioning. Although this response may assist in immediate adjustment (i.e., reduce anxiety), it may have detrimental or no effects on later adjustment.

The effects of infertility may be conceptualized within these three categories. Most infertility research to date is on morale or well-being as measured by indicators of emotional distress, self-esteem, or loss of control (see Dunkel-Schetter & Lobel, Chapter 3). Virtually none of the existing research has investigated somatic health changes in infertile individuals, although the chronic nature of the stress involved is likely to have somatic effects. Although some infertility research has examined effects on social functioning (Abbey, Andrews, & Halman, Chapter 4), in-depth investigations of social effects of infertility over time are not yet available.

In summary, it is recommended that infertility researchers be more cognizant of the complexities involved in defining adjustment to stress, specifically with reference to infertility. It is suggested further that a multidimensional approach like that of Lazarus and Folkman (1984) be adopted. Researchers also must remember that infertility may have distinct effects on different dimensions of adjustment and that these effects may change over time. Finally, investigators are encouraged to study dimensions of adjustment not emphasized in past research, such as somatic health and social functioning.

Positive Effects of Infertility

One dimension that models of adjustment to stress tend to overlook is that of the positive or beneficial effects. This may be because many forms of stress have few or no positive effects. Also, the extent of positive effects may vary greatly between individuals as a function of their coping mechanisms and coping resources. For infertility, a significant amount of evidence suggests that there are perceived positive effects of the experience for many individuals and couples. Perhaps most common are reports of positive effects on the marital relationship (Daniluk, 1988; Hearn, Yuzpe, Brown, & Casper, 1987). Past research on parents with a chronically ill child has shown that a stress like this can strengthen or weaken a marriage (Chesler & Barbarin, 1987; Masters, Cerreto, & Mendlowitz, 1983). Thus, evidence is already available to suggest clearly that some people can grow from adversity (see also Collins, Taylor, & Skokan, 1990). Yet research on infertility has never focused on this aspect.

Potential positive effects of adverse events are difficult to examine because social desirability may be involved in self-reports. Perhaps more significant is the issue of whether positive effects really occur, or if the
self-reports reflect adaptive cognitive coping techniques. While this may not be possible or necessary to determine, further consideration of these issues is worthwhile. An emerging tradition of work on adaptive illusions (Taylor, 1983; Taylor & Brown, 1988) provides a basis upon which to formulate hypotheses and to design investigations on possible positive effects of infertility among individuals.

Gender Differences in Adjustment

Few results from research on reactions to infertility have been replicated (Dunkel-Schetter & Lobel, Chapter 3). The one finding that is observed somewhat consistently is that men and women differ in the intensity of their reactions to infertility, with women experiencing more distress (Daniluk, 1987; McEwan et al., 1987; O'Moore, O'Moore, Harrison, Murphy, & Carruthers, 1983; Platt, Ficher, & Silver, 1973) and other adverse reactions (Freeman, Garcia, & Rickels, 1983) than men. Also, some of the chapters in this book indicated women's greater propensity to express distress regarding infertility (Abby et al.; Stanton), greater use of behavioral self-blame (Tennn, Affleck, & Mendola), and greater willingness to seek social support (Abby et al.; Stanton) and to view their social interactions regarding infertility more positively (Abby et al.) than men. In addition, Stanton (Chapter 5) reported gender differences in coping and infertile individuals' tendency to endorse the perception that the sexes cope differently (see also Stanton, Tennen, Affleck, & Mendola, in press).

Not all past studies on infertility have revealed gender differences, but sufficient evidence of them exists to merit follow-up. A flaw in past infertility research is that not all studies that have sampled men and women report the results of tests for gender effects on psychological responses. A further problem is that women with suspected or diagnosed infertility are studied much more often than infertile men. Since it is possible that infertile men are equally distressed and since infertility affects equal numbers of men and women, it is important to increase the number of studies available on men and to report tests of gender differences when men and women are studied. Further investigations might seek not only to document definitively the dimensions on which infertile women and men differ, but also to shed light on the underlying mechanisms.

Several plausible explanations, not mutually exclusive, exist for gender differences in psychological reactions to infertility. First, more infertility treatments exist for women than for men. Related is the observation that women initially seek treatment for infertility more often than men. Further, women carry responsibility for monitoring their menstrual
cycles and ovulation which involves considerable time and inconvenience, whereas men generally have less responsibility, even when the male is the infertile partner. Thus, the "average" infertile couple may be one in which the woman is undergoing diagnostic procedures, treatment, or menstrual cycle self-monitoring, and the man is less involved in fertility pursuits. Most tests of gender differences have not controlled for amount of time devoted to fertility diagnosis and treatment, a factor that may underlie differences in distress.

It is also important to compare couples in which the woman has been diagnosed infertile to couples in which the man has been diagnosed. Few studies have attempted to untangle effects of gender from effects of diagnosed infertility. Chapters in this volume by Stanton and Tennen et al. report tests for effects of which partner was diagnosed in samples of couples and found no differences in psychological distress. However, the sizes of the subgroups of men and women with diagnosed infertility were not large in either study. McEwan et al. (1987) also addressed this issue and found that women were more distressed than men when the cause of the couple's infertility was unknown. In future studies of men and women with diagnosed infertility and their partners, it is advisable to include groups of couples with no known cause of infertility and with both partners infertile for comparison purposes.

Other possible underlying factors in gender differences in reactions to infertility are gender differences in the value or importance of parenting and in coping. It is necessary in developing an understanding of reactions to infertility, and specifically gender differences in those reactions, to consider the importance individuals place on parenting as a life goal or aspect of identity (Clark, Henry, & Taylor, Chapter 8). Presumably, individuals who value parenting highly will be more distressed if they are infertile than those who do not. To the extent that traditional sex roles dictate that women should value parenting, and are inadequate if they do not become mothers, gender differences in reactions to infertility may reflect this socialized difference in the importance of becoming a parent.

A related factor to consider is sex-role traditionalism. Because motherhood is a central aspect of traditional female roles, one would expect that more traditional women experience more distress over inability to conceive than less traditional women. Furthermore, to the extent that fertility is important in traditional male sex roles, a similar difference may exist between more traditional and less traditional men. Untangling gender differences in sex-role traditionalism and strength of desire to be a parent from gender differences in distress remains a challenge for infertility researchers.
The Social Context of Infertility

Some life stresses are more socially stigmatizing than others. AIDS today is a highly stigmatizing and stressful condition (Herek & Glunt, 1988). Ten years ago, cancer was similarly stigmatized (Wortman & Dunkel-Schetter, 1979), although this is not as true at present. An often overlooked aspect of infertility is that, for many reasons, it is a highly stigmatizing condition. First, infertility is not very well understood by the public. Myths exist about it, such as the belief that adoption will increase the likelihood of conceiving, or that high degrees of masculinity and femininity are associated with being more fertile. Facts about infertility are not well disseminated, nor is there much public education on this health problem.

Second, there is a veil of secrecy surrounding infertility—people don’t talk openly about their infertility problems with others very often. In addition, information that a couple is unable to conceive is considered very private and embarrassing. The degree of secrecy involved probably reflects in part that infertility involves sexual behavior. Many individuals are not comfortable discussing sex with families and friends. Discussions of infertility can make them vulnerable to comments or suggestions regarding their sexual behavior. The secrecy surrounding infertility may also reflect the fact that couples fear negative social reactions from social network members, such as jokes or unwanted advice. In order to avoid these, the couple may refrain from discussing their inability to conceive with others.

There are probably other complicated reasons why infertility occurs within a social context of misconceptions, myths, stigma, and secrecy. Only one study has investigated this aspect of adjustment to infertility (Miall, 1986) apart from the chapter by Abbey et al. in this volume. Yet, the social context of infertility is certain to pose barriers to successful adjustment for couples and individuals. Social acceptance and support are valuable assets in adjusting to stress (Cohen & Sydiche, 1985; Cohen & Wills, 1985; House, Umberson, & Landis, 1988; Sarason & Sarason, 1985). The absence of these resources may make infertility a compounded stress event, not only one of personal loss, but also one of social victimization. Negative social reactions such as derogation, avoidance, or rejection which co-occur with a number of life events may be an additional source of stress. Work on negative social reactions to victims provides theoretical premises for studying these issues in infertility (Bennett Herbert, & Dunkel-Schetter, in press; Wortman & Lehman, 1985). Research of this kind promises to improve the social circumstances faced by infertile individuals, particularly if it can serve as a basis for public education and destigmatization of this disorder.
METHODOLOGICAL ISSUES IN RESEARCH ON ADJUSTMENT TO INFERTILITY

The issues discussed in this section are: (1) The need for theory; (2) sampling and generalizability; (3) research designs and analyses; and (4) assessment issues and problems.

The Need for Theory

A problem that characterizes most of past research on psychological reactions to physical illness and medical treatment in general is that it has been atheoretical. With the exception of investigations based on stage theories of adjustment, this applies to psychosocial infertility research as well. Use of existing theories from psychology to formulate hypotheses and to design studies would expand the horizons of infertility research and offer more grounded approaches to understanding the effects of infertility. Because the value of theory in scientific research is well established, we will not expand on this point, but rather discuss some examples of how specific theories may apply to infertility. By doing so, it is hoped that the meaning of the term "theory" in this context can be demonstrated and the value of theoretical approaches to research explicated.

Several of the chapters in this book adopt theoretical perspectives as frameworks in the manner we are recommending. Stanton (1991), for example, uses the Lazarus and Folkman (1984) framework to study coping and appraisal in infertile couples. This broad and comprehensive framework has much to offer infertility researchers. Not only does it provide a method for conceptualizing long- and short-term effects of stress, but the model also distinguishes causal antecedents and mediating processes. Although specific hypotheses are sometimes difficult to formulate based on the model, it provides a basis for designing infertility models and a framework for operationalization of variables. Other stress and coping theoretical frameworks that might be useful include those by Hobfoll (1989), Pearlman (Pearlin, Menaghan, Lieberman, & Mullan, 1981), and Moos (Moos & Billings, 1982; Moos & Schaefer, 1986).

Further examples of the use of theory in infertility research are the chapters by Tennen et al., Abbey et al., and Campbell et al. These chapters utilize theoretical work on control, cognitive appraisal, social support, and causal attributions to develop hypotheses. Although no single theory is used in any of these investigations, the integration of several past approaches served as the basis for these authors to develop their individual focus. The chapter by Clark et al. also illustrates the application of theory to infertility research. In this case, theory and research from social cognition
are utilized to pose hypotheses and develop a model of cognitive restructuring following permanent involuntary infertility.

Many traditions of research not covered in this book provide theoretical bases for enriching the study of adjustment to infertility. For example, there are many theories about grieving and bereavement that have not been applied to infertility. As Dunkel-Schetter and Lobel (this volume) describe, infertility is a threat initially for most and, for many, that threat is gradually transformed into a loss. The work of Weiss (1988), Parkes (1972, 1988), Stroebel and Stroebel (1987), and others (Hansson, Stroebel, & Stroebel, 1988) on bereavement and adjustment to loss has clear applicability to studies of that subset of individuals for whom infertility represents a permanent loss.

The term "theory" should not be confused with having a formal, causal model. Theoretical perspectives on the processes of adjustment to stress are not always grand, macroscopic, or causal theories. Major theoretical frameworks are very useful, yet they do not always specify all the intricacies of how the variables in the model interact or operate over time to produce effects. Mid-range theories, in contrast, provide more specific or finer-grained analyses of the interrelationships of variables and their effects. Theoretical work on cognitive adaptation (Taylor, 1983), the self (Cantor, Markus, & Niedenthal, 1985), self-regulation (Carver & Scheier, 1990), commitment (Brickman, 1987), social support (Thoits, 1986), attachment (Bowlby, 1973; Cohen, 1974; Shaver, Hazan, & Bradshaw, 1988), and on many other topics may offer valuable insights to infertility researchers. It is hoped that at least some of this wealth of theory existing in psychology will be thoughtfully applied to the study of infertility in the future. Comparative tests of hypotheses and theories are recommended, as well as tests of hypotheses drawn from individual theories.

As described in the first chapter of this book, the most dominant theories of adjustment to infertility are stage theories that posit a set sequence of emotional reactions and a final stage of resolution, one viewed as adaptive. Landmark work on stages of response to major losses has documented that stage theories are not well substantiated empirically, and that models of individual variation in emotional response seem more appropriate (Silver & Wortman, 1980; Wortman & Silver, 1987). In light of this, it would be useful for longitudinal studies to test stage theories of adjustment to infertility. However, it does not seem advisable to test these models exclusively. Research designs might be developed to test simultaneously hypotheses derived from stress and coping theories and from stage models of adjustment. Also, studies of infertile individuals long after they have been through the experience (i.e., 2 to 10 years) would be valuable in indicating the extent to which emotional "resolution" occurs and to investigate long-term or permanent effects.
Sampling and Generalizability

Studies of infertility to date have not been strong with respect to sampling procedures. Examination of the methods of studies reviewed by Dunkel-Schetter and Lobel in an earlier chapter of this volume indicates that little attention is paid to representativeness of sampling and to qualifying conclusions correspondingly. Perhaps the biggest problem with these studies is the frequent use of IVF patients and infrequent discussion of the unusual self-selected nature of this group (see Campbell et al., Chapter 8, on this issue). IVF patients do not represent infertility patients as a whole. Thus, investigators must move beyond studying this readily available and cooperative group to the study of other less accessible but equally important groups. Not only should users of other medical treatments for infertility be studied, but those who do not seek services should receive attention also. Hirsch and Mosher (1987) found several infertility-related and demographic differences between users and non-users of infertility services. At present, we know little about the psychological status of those who do not pursue medical options.

In general, sample characteristics should become a greater focus in psychosocial infertility research. Medical characteristics such as duration of infertility, diagnosis and treatments for infertility, and whether infertility is primary or secondary are potentially relevant factors influencing psychological reactions. Studies must either sample homogeneously on these dimensions, or sample heterogeneously enough to allow for powerful tests of these variables. Since infertility is such a diverse category of disorders, differences in psychological adjustment among infertile subjects with different medical characteristics may be as critical as differences between infertility and other life stresses. Thus, medical variables must be taken into account more fully in future studies.

Sociodemographic characteristics of subjects also must receive more attention. The majority of investigations to date have included white, middle-class women being treated in private practices or exemplary university infertility programs. Infertility is of high prevalence in minority groups and occurs disproportionately in lower socioeconomic-status individuals in the United States, as described in the first chapter of this book. In addition, a good deal of infertility treatment occurs in public clinics. These factors must be considered in sampling and in drawing conclusions. Achieving a full understanding of the effects of infertility necessitates more diversity in samples and more attention to differences among subjects in social class, ethnicity, education, income, and gender. In particular, there are virtually no studies of infertility in black or Hispanic groups and they are very much needed.

Finally, the usual standards for rigorous survey research with respect
to sampling should be applied to infertility research. Sampling should be systematic as much as possible, response and refusal rates should be accurately recorded, and biases in sampling should be estimated. In medical settings, patients are often missed or removed from the study for various reasons, thereby introducing possible sampling bias. It is important to track these occurrences and to consider sources of bias, then to limit conclusions appropriately. Psychosocial infertility research has progressed sufficiently that the representativeness of samples and the generalizability of the results are now essential to consider. Future reviews of this body of research might seek to distinguish studies on the basis of the sampling procedures of the samples and the extent to which the results have been shown to generalize to various subgroups of the infertile population.

**Research Designs and Data Analysis**

At this stage of knowledge, certain research designs seem clearly superior to others for studying infertility. Two recommendations follow from the research in this book. First, there has been very little longitudinal research on adjustment to infertility, yet longitudinal research can add immeasurably to the knowledge we have gained from cross-sectional designs. Most of the pressing research questions concerning changes over time, for example, can be addressed only with longitudinal studies. It is recommended that future studies on adjustment to infertility assess multiple indicators of adjustment on multiple occasions over a number of years. Such studies would help greatly in understanding the process of adjustment to infertility.

Second, control groups continue to be helpful in distinguishing which effects accompany infertility specifically and which are not unique. Only infertility-specific effects help to clarify the unique characteristics of this particular disorder. Although the use of control groups is recommended, the choice of what type of groups to use should be undertaken carefully. By choosing particular groups, an investigator may be able to distinguish distinct effects of various aspects of infertility. For example, infertile individuals might be contrasted with individuals who adopt, who choose childlessness, and who already have a child in order to untangle the effects of infertility from those of childlessness. Attention must be paid to purity of control groups also. For example, individuals who have a child cannot have experienced infertility earlier.

It is not clear that control groups need be of the same size as infertile groups, that they must be studied at every point in time longitudinally, or that every measure must be administered to control subjects. A potentially useful design is one in which a large sample of infertile individuals...
followed longitudinally with multiple assessment instruments, with smaller control groups studied at the outset and end of the study using a more limited assessment package. In short, innovative variations of clinical research designs may offer value to infertility researchers at this time at a manageable cost.

Clearly, attention to sample size and statistical power is needed in planning infertility research. Larger samples not only afford better power to detect effects if they exist (i.e., reduced likelihood of Type II error), but they also permit more sophisticated multivariate data analyses that may be appropriate. For example, structural equation modeling has not been utilized yet in infertility research although it may be useful in understanding the simultaneous effects of several factors in predicting adjustment. With the advent of longitudinal case-control designs with large and representative samples, our understanding of infertility will be much enhanced.

Assessment Issues and Problems

Most of psychological infertility research to date has utilized self-report instruments. Therefore, the discussion here concentrates on these methods of measurement. There are two basic approaches to the systematic assessment of psychological effects of infertility through self-report. One approach is to utilize available instruments that assess the effects of other life events and stresses. The second approach is to develop multiple-item quantitative indices specific to infertility. Past research has utilized both approaches. Most of the chapters in this book employed standard scale measures such as the SCL-90-R (Derogatis, 1977), but a few involved the design of measures unique to the study of infertility, such as Abbey et al.'s fertility-problem stress measure and Stanton's measure of infertility distress. A combination of these two general approaches is recommended because each has advantages and disadvantages.

The advantage of using standard scales is illustrated in the chapter by Dunkel-Schetter and Lobel wherein the interpretability of the results of studies on infertility is discussed. Scales with known reliability and validity and with available norms for normal and psychiatric adult groups are attractive with respect to drawing conclusions specific to infertility. In choosing among the scales that fit these criteria, researchers may benefit by using certain scales across studies in order to replicate and extend results. When different instruments are used, divergence of findings is more difficult to explain. On the other hand, it would be unwise for all researchers to adopt certain instruments to the exclusion of others at this stage in our knowledge.
The chief disadvantages of standard scales are that they may be inappropriate, impractical, or incomplete for infertility research. For example, some instruments such as the MMPI may seem offensive to infertile subjects and may require careful prefacing. Others may be impractical simply because of length, method of administration, or match with the education or language of the population. Many instruments have not been developed for general population studies and are therefore not useful in urban public clinic settings where level of education and fluency vary. Clearly, care should be taken in considering the appropriateness of the selected scales for the particular population studied. Moreover, standard scales should not be used at all costs. If one does not exist to measure a particular theoretically important concept, new items must be developed instead.

The advantage of developing measures for studies of infertility is that they can be tailored specifically to the targeted populations, and they can include all theoretically and clinically important dimensions. At this stage of infertility research, there is a risk of missing important aspects of subjects’ experiences unless we design new measures to supplement standard scales. These measures can be piloted to weed out problems that accompany instrument development, such as poorly worded or redundant items and response option problems. Even with careful piloting, however, new measures may have poor reliability, questionable validity, and there is no basis for comparison of scores to other groups or studies. For these reasons, they are best combined with standard scales in almost any design.

In addition to the use of standard scales and new measures specific to infertility, researchers should include open-ended questions in their protocols to the extent that time permits, in order to supplement quantitative assessment tools. By allowing subjects to answer questions on the concepts of interest in their own words, open-ended questions can provide further information, such as insight into the obtained results and ideas for additional hypotheses.

These assessment recommendations are not only geared to infertility research, they apply to most stress and coping research endeavors. When hypotheses are being both generated and tested, as in psychosocial research on infertility at present, a combination of assessment approaches is ideal. At earlier or later stages of our knowledge on a topic, different assessment methods might be recommended.

As this area of research expands, it would be useful to add to the repertoire of assessment techniques applied. For example, observational measures might be collected, such as techniques for observing and recording interactions of infertile partners with each other or with medical practitioners. It would also be useful to measure stress physiologically.
example, the effects of infertility on cardiovascular, immune, and endocrine functioning could be assessed. Emerging work on the effects of stress in pregnancy on physiology and birth outcomes suggests that it plays an important role in some reproductive outcomes (Lobel, 1989). In addition, research is in progress on stress as a barrier to conception (Edelmann & Golombok, 1989; Giblin, Poland, Moghissi, Ager, & Olson, 1988; Harrison, Callan, & Hennessey, 1987). However, as we discussed in Chapter 1, there are drawbacks to psychogenic approaches. In particular, investigators of psychosocial contributors to infertility must be cautious not to overinterpret results or to blame the victim. Given these caveats, it is useful to examine physiological changes over time in infertile individuals who are chronically stressed and any role these changes may have in decreasing the likelihood of conception.

IMPLICATIONS FOR TREATMENT AND INTERVENTION

In Chapter 9, Reading discussed general issues in psychological intervention with infertile couples. In this section, we focus on several clinical issues generated specifically from the research and discussion in this book. Three issues and their clinical implications are highlighted: (1) Diversity in reactions to infertility; (2) risk factors for distress in infertile individuals; and (3) intervention issues regarding partners coping with infertility. Finally, we suggest directions for clinical research and intervention in infertility.

Diversity in Reactions to Infertility

As Dunkel-Schetter and Lobel indicated in this volume, much variability exists in the reactions of individuals to infertility. This observation carries several clinical implications. First, infertility will result in marked distress for some people, and the availability of psychological support for this group is essential. The need for intervention is not necessarily exclusive to those with clinically significant levels of psychological symptomatology, however. As Paulson, Haarmann, Salerno, and Asmar (1988) demonstrated, approximately half of a group of infertile women who sought counseling did not evidence clinical maladjustment. Thus, those who offer medical services for infertility might best serve their patients by providing psychological assistance and resources to all who enter the service. Despite this recommendation, the assumption that everyone who is infertile will require psychological counseling is unwarranted. Some individuals will need little or no formal support, others may benefit from a
support group or informal assistance, and still others may require individual or couple therapy to cope with the rigors of the infertility process.

A second clinical implication that follows from the observed variability in response is that, when an individual or couple does seek therapeutic intervention, clinicians would do well to assess the particular areas of impact of infertility for the individual client. No one particular issue has emerged in past research as the most salient or challenging for most infertile couples. Rather, individuals are likely to differ markedly in their experience of the specific aspects of infertility that carry the greatest threat. For example, the most distressing aspect for some might be the threat to their expectation that parenthood would comprise their primary life activity, whereas others might fear abandonment by their partner in response to infertility. Helping clients to identify the most difficult aspects of the experience can render more manageable what initially might seem overwhelming. This delineation of specific areas of impact can then serve as a framework for organizing a collaborative plan to address specific difficulties.

Finally, the demonstrated diversity in reaction to infertility reminds clinicians that there is no one "correct" way to react to or cope with this problem. At this point there is little evidence that those experiencing grief over infertility or other losses go through a predictable sequence of emotional reactions. Although there are good reasons to believe that personal self-disclosure and emotional expression may facilitate adjustment to traumatic events in general (Pennebaker, Hughes, & O’Heeron, 1987; Pennebaker, Kiecolt-Glaser, & Glaser, 1988) and to infertility specifically (Menning, 1989; Reading, Chapter 9), invariably encouraging such expression may not be in the best interests of particular clients. Some might respond more favorably to a problem-solving approach, for example, and others might need help in moving from emotional expression to developing ways to lessen the power of those emotions and to enhance choice and control in their lives.

If therapists’ expectations regarding the most appropriate reactions to infertility and their sequence are translated to the client into prescriptions for acceptable responses, this may only hinder the therapeutic process. Greater assistance may be provided to clients by carefully assessing the client's levels of distress, identifying the primary contributors to that distress, and tailoring interventions for particular domains of psychosocial functioning. This is not to suggest that commonalities in reactions to infertility do not exist or that we should abandon attempts to construct normative frameworks for understanding adjustment to infertility. Rather, we are recommending that, at the current state of knowledge, assumptions regarding predictable or appropriate patterns of adjustment to inf
fertility are a poor basis for therapy. Instead, we encourage clinical assessment and therapeutic acceptance of diversity in reactions to infertility, similar to that which might be provided to victims of other negative events.

Risk Factors for Distress in Infertile Individuals

Although no single pattern of adjustment to infertility appears normative, authors of the previous chapters have identified several factors that might render particular infertile individuals and couples more vulnerable to distress. By assessing these factors, the clinician may be able to identify those who are most at risk for adjustment difficulties. Interventions can then be targeted toward these individuals and to issues that are most problematic. Factors that appear promising as risk factors for distress in infertile individuals are: (1) Expectation that parenthood will fulfill high-level goals; (2) preoccupation with a search for causes of infertility; (3) low perceived personal control; (4) coping with infertility through avoidance; and (5) low satisfaction with spousal and general social support. Some of the clinical implications of each of these will be highlighted.

A first factor that warrants clinical examination is the infertile person’s goal structure. As noted by Clark and colleagues in Chapter 8, infertile individuals expect parenthood to fulfill particular goals. Those for whom fertility is synonymous with high-level goals of happiness, fulfillment, or maturity, for example, might be particularly vulnerable to distress. This suggests that therapeutic goals might include enabling clients to examine these higher-order goals, identifying alternate paths to fulfillment, and perhaps mourning the loss of unattainable goals.

As Tenenbaum and colleagues pointed out in Chapter 6, infertile couples are similar to others who experience negative events in that they often search for explanations for their experience. These researchers found that individuals attributed their infertility to a variety of factors, including biomedical causes, their own behaviors, and chance. Greater endorsement of causal explanations was related to greater distress, whereas the absence of causal attributions was associated with less distress. More intense preoccupation with the cause of infertility, then, may render one vulnerable to distress. Although pursuit of the medical cause of infertility can lead to effective treatment, a cost associated with such a causal search is that it is disruptive emotionally. Thus, the clinician might want to explore the various advantages and disadvantages of engaging in such a search with clients experiencing infertility. Similarly, the pros and cons of reaching particular conclusions regarding the causes of infertility might be examined.

The issue of control also provides a potentially productive point of
therapeutic intervention. Although the three chapters in which control was examined (Campbell et al.; Stanton; and Tennen et al.) assessed somewhat different facets of the construct and results were not completely consistent, all suggested that low perceived control is associated with greater distress. As Campbell and colleagues found, perceptions of control surrounding infertility and the impact of these perceptions on distress vary as a function of the particular domain of control examined. Clinically, one might ask the question, “Control over what?” What can the infertile couple control in their lives? What issues are beyond their control? Again, separating this issue into its components might help the infertile couple to distinguish aspects of the situation that are controllable from those that are not and to see that all control is not lost. A goal of therapy could be to examine how one’s sense of control can be realistically enhanced. Generating mechanisms for bolstering control, such as obtaining information, communicating assertively with medical personnel and significant others, and focusing on other roles where the opportunity for control is great may aid those whose sense of control is compromised.

Even when a couple is informed that the reproductive technology they are electing has a very low rate of success or that they are permanently infertile, they may be reluctant to give up hope that they will conceive and that they can control the reproductive outcome. At these times the clinician may be called upon to help the couple develop a realistic assessment of control over reproductive outcomes so that they can make informed choices or move on to concentrate on potentially more productive life pursuits. This may entails helping the couple to revise their assumption that all important outcomes are under their own control, to change their notion that permanent infertility comprises a personal failure, or to give up the belief that their only route to happiness is to have a biological child.

Among the diverse coping mechanisms used by those who are infertile, coping through avoidance is associated with distress for both men and women (Stanton, Chapter 5). Avoidance may contribute to distress because it impedes the grief process, restricts engagement in potentially rewarding activities, or involves behaviors such as drinking or binge-eating. Alternatively, experiencing substantial distress might lead to actions designed to avoid that distress. In addition, women’s coping through accepting responsibility and men’s confrontive and self-controlling coping may prove problematic (Stanton, Chapter 5). Alternatively, both Tennen et al. and Stanton found that citing the benefits of infertility or otherwise appraising it positively enhanced well-being. Clinicians may find it useful to administer one of the scales developed to assess coping, to assess the effectiveness of the strategies employed, and to aid the client in trying and practicing new coping skills, along with evaluation of their success.
FUTURE DIRECTIONS IN RESEARCH AND APPLICATIONS

this regard, past intervention research involving coping skills with other populations may be instructive (e.g., D'Zurilla, 1986; Heppner & Hillerbrand, 1991; Strentz & Auerbach, 1988).

It should be noted that the consequences of naturally electing a particular coping method may be quite different from those that result when the coping strategy is prescribed therapeutically. For example, self-generated positive aspects of infertility might be beneficial to the infertile person, but encouragement by the clinician to focus on the positive might be ineffective and perceived as insensitive. Rather, the clinician may wish to help the client develop an open-minded approach to generating and experimenting with possible coping mechanisms. A support group setting also can promote creative generation of coping alternatives.

Finally, the impact of the social context on the infertile person's adjustment deserves therapeutic attention. As Abbey et al. (Chapter 4) demonstrated, lower satisfaction with social support and greater interpersonal conflict with the spouse were related to lower perceived marital quality. Clearly, professionals should assess the relationship quality of the infertile person whether or not both members of a couple seek counseling. Identified areas of marital conflict, such as those involving infertility-related decision-making, discrepant communication styles, and sexual difficulties can be addressed through established couples' therapy techniques (Jacobson & Gurman, 1986). Whether or not the individual seeking to become a parent is in a well-functioning relationship, identification of ways to enhance social support more generally may be useful. National or local support groups such as those run by RESOLVE can be invaluable in this regard. Some specific targets for intervention with the couple are outlined in the next section.

Although this section has focused on a few specific factors that render the infertile person vulnerable to distress, several other personal and social variables deserve clinical attention as risk factors as well. For example, these include but are not limited to the infertile client's premorbid characteristics, such as the individual's own parenting and family history, religious attitudes regarding family issues or the meaning of infertility, and personal gender schemas. We also wish to note that assessment and intervention aimed at specific risk factors should not preclude a concomitant focus on the individual's strengths. Some infertile clients are so preoccupied with personal deficits and losses that they are taken aback when a clinician asks them to discuss their positive attributes or their prior successful coping efforts. Identification of these characteristics can inform current coping attempts. Further, maintaining an explicit focus on personal strengths can help individuals live with infertility as one aspect of their lives rather than as their sole focus.
Intervention Issues Regarding Partners Coping with Infertility

We noted previously in this chapter several gender differences in the experience of infertility that emerged from the research reported in preceding chapters. How these differences are perceived by couples may certainly influence their relationship functioning. Consistent with Stanton's (Chapter 5) finding that infertile men and women believe that the sexes cope differently with infertility, couples may demonstrate a tendency to magnify their differences and neglect their similarities. How each partner interprets perceived differences also has interpersonal consequences. In their review of attributions in marriage, Bradbury and Fincham (1990) concluded that spouses who make attributions for their partner's behaviors that cast them in a negative light are more likely to be dissatisfied with their marriages. For example, spouses in distressed marriages tend to view their partners' motivations as selfish and their behaviors as negatively intended. Thus, an infertile woman might view her partner's seeming stoic acceptance of their status as indicating that he cares little about becoming a parent or about her. The professional working with the infertile couple might assess how each partner views the other and how each interprets any perceived differences. Discussion of these perceptions might help to pinpoint where real differences lie and to establish the mutual goals that exist for the couple. Such discussion could lead to the development of methods by which to address differences and to pursue shared aims.

This is not to suggest that a therapeutic goal is to remove conflict on all issues surrounding infertility for the couple. In fact, Gottman and Krokoff (1989) recently found that although disagreement and exchanges of anger were related to concurrent marital dissatisfaction, these indicators of conflict engagement predicted increased marital satisfaction over a three-year period in a community sample of couples. Marital deterioration, in contrast, was predicted by defensiveness, stubbornness, and withdrawal from interaction. Although not without controversy (Gottman & Krokoff, 1990; Woody & Costanzo, 1990), the authors speculated that conflict-avoiding couples may be at risk for dissatisfaction in the long run. Applied to infertility, these results suggest that couples should be encouraged to maintain open discussion with each other on issues surrounding infertility, even when conflict results. A focus on the couple's mutual goals and on the other partner's perspective can help to minimize defensiveness. Avoidance of the painful issues surrounding infertility is tempting for many couples. However, engagement with the partner, even if that entails conflict, may yield more respect for the other's perspectives and better adjustment in the long run.
Directions for Clinical Research and Intervention in Infertility

Contributions to this volume have generated many ideas for therapeutic interventions that might aid the couple in coping with infertility. These techniques await empirical test by clinical researchers. As Reading noted in Chapter 9, very few studies have assessed the value of supportive interventions with infertile individuals. Questions regarding every aspect of effective treatment remain. Which kinds of interventions most effectively decrease distress? When is an intervention best directed toward the individual, the couple, or groups of infertile people? Do components of effective treatments vary as a function of characteristics of the infertility experience, such as length of time infertile and probability of pregnancy? When should professionals be involved in psychological intervention and when is peer support more effective? Must grief be expressed and processed in order to attain psychological resolution of infertility? It is important to identify the most effective strategies to aid those who are coping with infertility.

We are just beginning to understand the predictors of successful adjustment to infertility, and intervention studies must be carefully designed in order to address these questions and the others that we face. The best design for such studies involves random assignment of infertile individuals or couples to treatment and control conditions. Ideally, designs will also include some consideration of factors that might moderate the effects of treatment (e.g., infertility duration) and assessment of treatment efficacy in multiple domains of functioning (e.g., marital functioning, individual well-being). Short of this, quasi-experimental research designs with rigorous evaluation procedures can be conducted.

Other areas of intervention also hold promise. For example, sexually transmitted diseases are a frequent and preventable cause of infertility (U.S. Congress, Office of Technology Assessment, 1988). Effective primary prevention programs designed to decrease disease transmission could do much to curtail fertility problems (Leiblum, 1988). In addition, treatment for infertility often necessitates interaction with a variety of health care professionals. The literature on improving physician-patient communication (e.g., Hays & DiMatteo, 1984) can guide interventions designed to enhance communication regarding infertility in the medical setting. In all cases, models for conducting methodologically and conceptually sophisticated intervention studies are available to inform the researcher. Researchers who conduct such studies will perform a valuable service for those who confront infertility.
CONCLUSIONS

In this chapter we have attempted to highlight a number of the issues involved in research with and intervention for those who experience infertility. Recommendations have been offered to those interested in undertaking future investigative or intervention activities. We hope that the complexities of the problem and the rigor required for future contributions are not daunting to those with an interest in infertility. Although there are challenges ahead, the rewards promise to be equal or greater.

The aim of this book as a whole has been to engender enthusiasm in the reader about the study of infertility. As we hope the book has demonstrated, this topic offers rich opportunities to researchers and practitioners. Building a stronger scientific knowledge base and developing potent psychological services targeted to each subgroup of the infertile population are among the major challenges that lie ahead.

Stress and coping research can contribute substantially to the quality of these endeavors. For example, the large body of work existing on stress and stress management has not been applied to infertility until quite recently. In general, a stress and coping perspective can improve the theories, methods, and applications that exist in the study of infertility. However, integrating research on infertility is not a unidirectional process. We hope that the analysis of research problems concerning infertility included in this chapter proves useful to researchers studying other target groups who are experiencing stress. In addition, results from studies of infertility can offer insights and new understanding to stress and coping researchers. Further, programmatic efforts to provide services for infertile couples and individuals may inform program development for other stressed groups. For example, well-designed interventions for infertile partners may be instructive in counseling efforts for couples who lose a child in an accident or to illness. Other specific groups to whom infertility programs might apply include parents experiencing sudden infant death syndrome and couples who experience repeated miscarriages. A reciprocal process of learning and exchange of information with research on stress and coping generally is much more valuable than scientific and professional efforts directed toward a singular problem or stressor.

We hope that the chapters in this book provide clear direction for the implementation of a stress and coping perspective in infertility research. It has been our intention to stimulate research in particular, but also program development. We have much to learn about psychological adjustment to infertility, and there is much to contribute. A stress and coping perspective can guide efforts to develop our scientific knowledge of individuals who confront the challenges of infertility. The content of
book and the empirical research to come should be the basis of efforts to provide effective aid to infertile people. By concerted clinical and research efforts, we believe much can be done for the significant number of individuals and couples who face the stress of infertility.

REFERENCES


