JOHN M. GOTTMAN *University of Washington*

CLIFFORD I. NOTARIUS *Washington, DC**

Decade Review: Observing Marital Interaction

This article reviews the advances made in the decade of the 1990s in observing marital interaction. Many technological advances in data collection, including synchronization of physiology, behavior, and cognition, and advances in data analysis such as sequential analysis, have yielded new understanding and advances in prediction of marital outcomes. The advances have also included the study of developmental processes, including the transition to parenthood and the study of midlife and older marriages. Central advances have been made in the study of affect and the study of power and in their integration. This advance has included the mathematical modeling of interaction using nonlinear difference equations and the development of typologies. There has been an added focus on health outcomes and the bidirectional effects of marriages on children. There has been an expansion of the study of marital interaction to common comorbid psychopathologies. Most important has been emergent theorizing based on the interaction of behavior, perception, and physiology, as well as their predictive power.

Observational research plays a major role in research on marriage, both for purposes of description and for building theories of the mechanisms underlying central phenomena occurring within families. It is the main roadway available for the precise study of family process. It has always been obvious to many scientists that observational research can enhance the study of marriages by adding a depth and richness to other, less expensive methods, such as surveys and questionnaires. In the decade of the 1990s, however, it also has become clear that observational methods can add predictive power and theoretical clarity. These important accomplishments stem, in part, from the power of observational data to reveal a replicable portrait of complex social interaction that lies beyond the natural awareness of even the most keenly sensitive spouse or partner, and thus lies beyond assessment with self-report instruments.

Many of these advances also have been enabled by significant technological breakthroughs in observational research that occurred in this past decade. With the arrival of inexpensive computer-assisted coding, live real-time observational coding, or the rapid coding of videotapes synchronized to computer-readable video, time codes became feasible. An observer can now code complex interaction between husbands and wives in real time and later compute onsets, offsets, and durations of speaker/listener events, compute interobserver reliability, and also perform sequential and time-series analyses that require knowledge of exactly when the events occurred. The merging of video and computer technology also has made it possible to time-synchronize the real-time acquisition of physiological and observational data from an interacting couple, and the use of video playback methods made it possible to time-synchronize spouses' perceptions and cognitions of

Department of Psychology, University of Washington, Seattle, WA 98115 (johng@u.washington.edu).

*5028 Wisconsin Avenue, NW, Suite 303, Washington, DC 20016

Key Words: comorbidities, interaction, marriage, observation, sequential analysis.

the interaction. Thus, technology has made it possible to study, with time-synchronized data, the dynamic interplay between behavior, cognition, and physiology. Researchers discovered that the isolated study of behavior, cognition, or physiology without careful study of their interdependencies would severely limit mapping findings onto the real interactional world of the couples we were studying. The technical breakthroughs of the 1990's have narrowed the gap between couples' natural experience of their relationship and researchers' precise understanding of study participants.

Advances in understanding marriage stem not only from breakthroughs in technology, but also from innovations in the methodologies used to extract information from the ongoing flow of interaction. Floyd (1989) reviewed research on the choice of coding units of different sizes and complexities. More and more interest was paid to developing global coding systems to capture targeted interactional processes. Basco, Birchler, Kalal, Talbott, and Slater (1991) developed and validated a rapid rating scale called the Clinician Rating of Adult Communication (CRAC). Bèlanger, Sauborin, Laughrea, Dulude, and Wright (1993) compared macroscopic global coding systems (Marital Interaction Coding System-Global and the Global Couple Interaction Coding System) and decided that the convergence was moderate and that it was premature to conclude that these macroscopic coding systems are interchangeable. Julien, Markman, and Lindahl (1989) presented a new global coding system and correlated it to the positive and negative codes of a more microanalytic Couples Interaction Scoring System (CISS). Although negative codes between the two systems showed some convergence, the positive codes did not. Couples high in marital satisfaction reported higher mutuality, whereas couples lower in marital satisfaction reported higher levels of destructive process, coercion, and postconflict distress. Wampler and Halverson (1990) developed a Q-sort observational measure of marital interaction, and they related it to their measures derived from the CISS (Notarius, Markman, & Gottman, 1983).

A more powerful method of creating global categories from more microanalytic categories was a factor analysis reported by Heyman, Eddy, Weiss, and Vivian (1995) using 995 couples' videotaped conflict interactions using the Marital Interaction Coding System (MICS). The factors formed were hostility, constructive problem discussion, humor, and responsibility discussion. It is interesting that these super-categories are quite different from earlier suggestions for a global MICS system made by Weiss and Tolman (1990). An alternative approach to global coding was the work represented by the Gottman and Levenson laboratories in which detailed microanalytic coding with multiple coding systems was undertaken (e.g., Gottman, 1994). This included the coding of facial expressions (the Emotion Facial Action Coding System, Ekman & Friesen, 1978), MICS coding, the development of a more rapid version of the CISS (RCISS, Krokoff, Gottman, & Hass, 1989), and a Specific Affect Coding System (Gottman, McCoy, Coan, & Collier, 1996) that codes macrolevels of emotional expression (e.g., anger, sadness, fear). This work has led to reliable microanalytic real-time observational coding of marital interaction in both conflict and nonconflict contexts. One advantage of coding specific affects is greater precision in studying positive affect. Gottman, Coan, Carrere, and Swanson (1998) found that positive affect was the only predictor of both stability and happiness in a sample of newlyweds. Finally, a more macro look across time at marital interaction was offered in a review by Christensen & Pasch (1993). They broke down marital conflict into seven stages, beginning with the precipitating event and evolving through the fight and then a return to normal.

The decade of the 1990s also saw the more widespread application of sequential analytic methods for the quantitative study of patterns of interaction between two people over time, the use of time-series analyses, and the mathematical modeling of marital interaction. In two landmark papers published in 1993, Griffin (1993a, 1993b) demonstrated an innovative approach for how event history analysis could be applied to the study of insider evaluations of marital interaction. The first paper described the methodology, and the second paper applied it in a study of marital interaction. Couples had two conversations, one about pleasant memories and one about a problem, and then they engaged in a video recall of affect procedure. The self-rating of affect during the video recall were the data for the analyses. The dependent measure was time until there was a transition out of negative affect. Griffin reported that, consistent with the Gottman and Levenson (1986, 1988) hypothesis, wives maintained a negative affect state longer than husbands did, particularly on the problem task.

Griffin and Greene (1994) reported the results of analyzing one case of orofacial bradykinesia

exacerbated during marital conflict. They used an interrupted time-series analysis to demonstrate that an increase of the symptoms followed a series of specific negative comments by the spouse in the conversation. Gottman et al. (1998) applied interrupted time-series analyses to their newlywed heart rate data to assess the extent to which a number of marital affective behaviors were either self-soothing or spouse-soothing; in a second step, they then used these data to predict marital outcomes 6 years later. As predicted by Gottman and Levenson (1988), only soothing of the male spouse (primarily self-soothing) predicted positive marital outcomes.

We will focus the remainder of our review on what we see as the two primary advances made in the study of marital interaction in the decade. First, we will examine how researchers have taken the fruits of cross-sectional, hypothesis-generating descriptive research and tested models for predicting the longitudinal course of relationships over time. These prospective studies were a major advance occurring in the decade, and their results demonstrate the maturation of the discipline. Second, we examine the empirical developments in several core content areas: (a) the study of power, (b) the exploration of marital interaction as a proximal determinant of individual well-being and distress, and (b) the study of interrelationships among interactional behavior, perception, and physiology. We will end with a commentary of the decade of research and a discussion of future research for the next decade.

The Study of Couples Over Time

Developmental Transitions

The family life cycle has been used to describe the natural history of couples over time. It is intuitively appealing to suppose that the interactional patterns characterizing young couples versus older couples, or young parents versus older parents, for example, are stamped with unique qualities that determine if the couple is adaptively passing through important and challenging family life-cycle transitions or not. Colloquially, couples expect the marriage to be different "once the honeymoon is over," and empirically, we know that parents on the average experience a significant decline in satisfaction after the birth of the first child.

Divorce prediction. Basic descriptive research during the 1980's paved the way in the 1990s for interactional research that can track the longitudinal course of marriages and can predict divorce. For a review of methodological issues, see Bradbury and Karney (1993). Gottman and Krokoff (1989) reported that a different pattern of interaction was related to concurrent marital satisfaction than to the change in marital satisfaction over time; for example, disagreement and anger were related to lower concurrent marital satisfaction, but to improvement in marital satisfaction over time. Buehlman, Gottman, and Katz (1992) reported that, in a sample of families with preschool-aged children, their coding of an Oral History Interview was able to predict divorce or stability over a 3-year period with 94% accuracy using a discriminant function analysis. The oral history variables were also correlated in clear ways with Time 1 marital interaction in both problem solving and affect, the couple's physiological reactivity during marital interaction, as well as Time 1 and Time 2 marital satisfaction. Gottman and Levenson (1992) reported the first prospective longitudinal study of divorce prediction that used observational data. They found that a couple's interaction and spouse's physiological responses observed at Time 1 were associated with a set of variables forming a cascade toward divorce. Couples starting on this cascade toward divorce at Time 1 had interactions that were marked by more negativity than positivity, and they rated their interactions more negatively upon video recall. Wives in these couples also had significantly higher heart rates and smaller finger pulse amplitudes (which could be part of a general alarm response in which blood is drawn into the trunk from the periphery). Subsequent work on the divorce prediction question with another sample of couples (Gottman, 1993, 1994) identified the ratio of positivity to negativity during the conflict discussion, and four specific negative interaction patterns (criticism, defensiveness, contempt, and stonewalling) as highly predictive of divorce (see also Gottman et al., 1998; Matthews, Wickrama, & Conger, 1996).

Transition to marriage. Smith, Vivian, and O'Leary (1990) studied premarital problem-solving discussions and predicted marital satisfaction at 18 months and 30 months after marriage. The negativity of the premarital interaction correlated with concurrent marital unhappiness but was not predictive of postmarital satisfaction. Controlling for premarital relationship satisfaction, affective disengagement during a premarital problem-solv-

ing discussion was negatively associated with marital satisfaction at 18 months and 30 months after marriage. Cohan and Bradbury (1997) examined the longitudinal course of marital satisfaction and depressive symptoms in newlywed marriages over an 18-month period. Problem-solving behavior mediated but did not moderate the relationship between life events and adjustment. In particular, angry wives had better adjustment to major and interpersonal events so that their depressive symptoms were reduced and their marital satisfaction increased.

Gottman et al. (1998) reported the results of a multimethod longitudinal study predicting the eventual 6-year marital happiness and stability from newlywed interactions observed in the first months after the wedding. Seven types of process models were explored: (a) anger as a dangerous emotion, (b) active listening, (c) negative affect reciprocity, (d) negative startup by the wife, (e) de-escalation, (f) positive affect models, and (g) physiological soothing of the male spouse. Support was not found for the models of anger as a dangerous emotion, active listening, or negative affect reciprocity in kind, either low or high intensity. Support was found for models of the husband's rejecting his wife's influence, negative startup by the wife, a lack of de-escalation of low-intensity negative wife affect by the husband, or a lack of de-escalation of high-intensity husband negative affect by the wife, and a lack of physiological soothing of the male spouse, all predicting divorce. Support was also found for a contingent positive affect model and for balance models (i.e., ratio models) of positive-to-negative affect predicting satisfaction among stable couples.

Transition to parenthood. In the past decade, four landmark books were published that summarized key longitudinal research projects on the transition to parenthood (Lewis, 1989; Michaels & Goldberg, 1988; Cowan & Cowan, 1992; Belsky & Kelly, 1994). There have been approximately 15 longitudinal studies on the transition to parenthood; many of the others were not prospective, longitudinal studies. The longitudinal findings are remarkably consistent. Most have concluded that for the overwhelming majority of couples this transition can be both extremely stressful and pleasurable. For approximately 40 to 70% of couples, there is a drop in marital quality. In general, marital conflict increases by a factor of 9, people are at risk for depression, there is a precipitous drop in marital quality within 1 year after the birth of the first child, people revert to stereotypic gender roles, they are overwhelmed by the amount of housework and child care there is to do, fathers withdraw into work, and marital conversation and sex decrease enormously. There is also an increase in joy and pleasure with the baby. The longitudinal studies have all discovered the strong linkages between the prebirth marital system (particularly highlighting the couple's conflict resolution skills, and a sense of "we-ness"), the parent-child system, and the baby's subsequent emotional/social and cognitive development. Belsky and Kelly's study is a rich source of information in understanding the transition. The Cowans' study is the only controlled preventive marital intervention study in the field, and they demonstrated a powerful intervention effect (of 24 hours of group supportive therapy during pregnancy) in reducing the drop in marital satisfaction, preventing divorce, and improving parenting quality. By the time the child reaches age 5, however, there were no differences between the experimental and control groups; it is still a mystery as to what happened to create relapse in the experimental group between years 3½ and 5. Lewis' (1989) landmark work defines very specific prebirth marital "competencies" that provide links to child developmental outcomes through parenting.

Couples at midlife and beyond. Overwhelmingly, the existing observational research on marriage has studied relatively young couples. The data that do exist on older marriages have been limited to self-report data, derived primarily from questionnaires and interviews (Erikson, Erikson, & Kivnick, 1989; Parron, 1982; Sinnett, Carter, & Montgomery, 1972; Guilford & Bengtson, 1979) with some exceptions (Illig, 1977; Zietlow and Sillars; 1988). In the 1990s, this state of affairs began to be remedied. Using an observational system for coding emotional behavior, Carstensen, Gottman, and Levenson (1995) studied the interactions of a representative sample of couples in their 40s or 60s as they attempted to resolve marital conflicts. With respect to negative emotions, the interactions of older couples were clearly less emotional than those of middle-aged couples. Older couples showed less anger, disgust, belligerence, and whining than did middle-aged couples. With respect to the more positive emotions, however, the evidence was mixed. Middle-aged couples expressed more interest and more humor, but older couples expressed more affection. Importantly,

these findings of lesser negative emotion and greater affection in older couples when discussing marital problems still held when the authors controlled for differences in the severity of the problems being discussed. The reports of the couples themselves were consistent with their behavioral coding. When they showed spouses the videotapes of their interactions and had them rate how they were feeling from moment to moment during the interaction, older couples indicated feeling more emotionally positive than middle-aged couples (Levenson, Carstensen, & Gottman, 1994).

The Core Content Areas

The Study of Power

It is fortuitous that in 1993 the late Calfred Broderick, originator of the decade review paper series in this journal, published an important book titled *Understanding Family Process.* Broderick organized family process literature, which he called "relational space," into three major areas, the *regulation* of interpersonal distance, the *regulation* of transactions, and the *regulation* of "vertical space," by which he meant power. The idea of "regulation" implied a homeostatic set point theory. In a therapy context, these three areas were respectively discussed as positivity/caring, responsiveness, and status/influence (Gottman, Notarius, Gonso, & Markman, 1976). We will briefly discuss these three areas. Historically, the regulation of interpersonal distance was first explored by examining the clarity of communication. Hypotheses were advanced to explore the role of unclear communication in dysfunctional families and family distress. More specific hypotheses were advanced that unclear communication was responsible for psychopathology (e.g., Bateson, Jackson, Haley, & Weakland, 1956; Watzlawick, Beavin, & Jackson, 1967), and the cybernetic model or the systems approach to family process was born. However, subsequent research over three decades has shown that the regulation of interpersonal distance is all about affect, not about communication clarity (e.g., Gottman, 1993). The regulation of transactions (e.g., signals of switches in speaking turns) has been studied with strangers (e.g., Duncan & Fiske, 1977; Jaffe & Feldstein, 1970) and has yet to be applied to the study of marital interaction.

The regulation of vertical space, that is, the study of power has been much more elusive. It was an area of important activity in the 1990s, particularly as the study of physically abusive marriages became a major focus of research attention. The empirical fabric of power always appears to disintegrate on closer examination. Broderick (1993) wrote:

> Literally hundreds of studies have been done on family power, who wields it and at whose expense. The matter has turned out to be complicated and elusive. As a result, the scholarly literature on power is voluminous, complex, and often contradictory (see Szinovacz, 1987). The great majority of these studies are based on questionnaires that ask the respondent to report on who wins the most contested decisions in his or her family. (p. 164)

Questionnaires filled out by independent observers do not correlate well, nor are different measures well correlated (see Gray-Little & Burks, 1983); nor have patterns of domination proven stable over time (see Babcock, Waltz, Jacobson, & Gottman 1993). An older paper by Gray-Little (1982) is noteworthy because it combined the observational assessment of talk time during a 6-minute marital conflict discussion and power during a marital game (the SIMFAM game, Straus & Tallman, 1971). Results were complex but included the result that balance in husband-wife power was related to marital quality; however, self-report and observational measures did not show a high level of agreement in classifying couples. The issues of blending the study of affect and power are central to the integration of psychological and sociological approaches to marriage. As we will note, the issue of how to conceptualize and study power may become clarified either through the use of more precise observational measures or the use of more precise data analytic techniques using data from two people that unfolds over time.

Power studied with more precise observations. An example of this approach to clarifying power is a recent study by Gray-Little, Baucom, and Hamby (1996). They assessed power more precisely, using a coding of the couple's influence patterns during a discussion of the Inventory of Marital Conflicts (Olson & Ryder, 1970). They found that egalitarian couples had the highest Time 1 marital satisfaction and fewer negative MICS behaviors (Weiss, Hops, & Patterson, 1973); also, wife-dominant couples improved the most in a 12-week marital therapy study.

Power explored in the context of gender and re-

lational hierarchy. Feminist writers have pointed to the central role that power must play in understanding marriages. Quantitative observational research has now begun to explore these ideas. Women typically start most of the marital conflict discussions in laboratories that use observational methods (Ball, Cowan, & Cowan, 1995; Oggins, Veroff, & Leber, 1993). The degree of negative affect and the amount of criticism with which a conflict discussion starts are also critical in determining its outcome. In one study, for example, the way a marital conflict interaction began determined its subsequent course 96% of the time (Gottman, 1994; Gottman et al., 1998, p. 7). White (1989), in a sequential analysis using the Raush, Barry, Hertl, and Swain (1974) coding system, found evidence for the contention that men display a more coercive style in resolving marital conflict, whereas women display a more affiliative style. Ball et al. reported that couples perceived the wife to be more important than the husband in the mobilization phase of problem talk, which involved raising the issues, planning on how to solve them, being active and taking control by silence and nonresponse. Husbands and wives both viewed this phase as the most stressful aspect of marital problem solving. Men were perceived as more influential in determining the content and emotional depth of later phases of the discussion. Women viewed their power in the early phases as illusory: "their behavior was shaped primarily by the effort to choose strategies that would avoid upsetting their husbands. " (Ball et al., p. 303).

Coan, Gottman, Babcock, and Jacobson (1997) used sequential analysis to investigate the propensity of two types of physically violent men to reject influence from their wives during a marital conflict discussion. The sequence of escalation of the negativity (from complaining to hostility, for example) was used to operationalize the sequence of rejecting influence. As hypothesized, abusive husbands whose heart rates decreased from baseline to the marital conflict discussion (labeled as Type I abusers in the study), rejected any influence from their wives. These men were also generally violent outside the marriage and were more likely to have used a knife or gun to threaten their wives than abusive husbands whose heart rates accelerated from baseline to the conflict discussion (label as Type II abusers in the study). These analyses were repeated for a representative sample of nonviolent newlywed couples in the first few months of marriage, and the escalation sequence of men rejecting influence from their wives predicted subsequent divorce (Gottman et al., 1998). The sequence of women rejecting influence from their husbands did not predict divorce. This study was the first time that negative affect reciprocity was broken down into responding negatively *in kind* (e.g., anger is met with anger) or *escalation* (e.g., anger is met with contempt). Negative reciprocity in kind was characteristic of all marriages; only the escalation sequence was characteristic of marriages that were later to end in divorce. These findings reconceptualize negative affect reciprocity as the rejection of influence.

Power studied with the mathematical modeling of marital interaction. Power, according to Broderick (1993), "may be most simply defined as the ability to win contested decisions" (p. 164). An alternative definition has emerged in the 1990s, however, using mathematical modeling of marital interaction. This alternative definition defines power quantitatively as the ability of one partner's affect to influence the other's affect. In this modeling (Cook et al., 1995; Gottman, Swanson, & Murray, in press), two influence functions are computed across the affective range of a conversation, one for the husband's influence on the wife, and one for the wife's influence on the husband. This approach to modeling is based on writing down two interlocking nonlinear difference equations for husband and wife, with influence functions computed after controlling for autocorrelation. The method has a venerable history in the marital field. Long ago, Anatol Rapoport (1960, 1972) suggested that two linear differential equations for husband and wife interaction could describe a marital system as escalating out of control or being self-regulated. He never operationalized these variables or applied them to real data; in addition, his equations were linear, and unfortunately, linear equations are usually unstable. Nonetheless, Cook et al., applying the new mathematics of nonlinear dynamic modeling (e.g., Murray, 1989), showed that depending on the shape of the influence functions, couples can have several stable steady states or "attractors," that are self-regulating, homeostatic set points for the marital system. A homeostatic attractor is a point in husband-wife phase space toward which the interaction is repeatedly drawn, and if the system is perturbed, it will move back to the attractor. These influence functions describe the impact of one person's affect on the partner's subsequent affect. This determination is made across the range of affects in the husband-wife dialogue. The influ-

ence functions make the study of power more detailed and specific. Power may be specific to particular affects. Asymmetries in influence reflect a power imbalance, and they reported that these asymmetries were predictive of divorce.

Power and marital typologies. An important research monograph was published by Fitzpatrick (1988) in which she presented the results of a series of studies that combined observational data on marital interaction with questionnaire data. She presented a typology of marriage from her analyses of ideology, communication, interdependence, and power dynamics in the marriage. Her work was another example of the integration of the study of power with marital interaction. In a monograph on what marital processes predict divorce, Gottman (1994) also presented a marital typology with three types, looking at interaction and influence, and his types appear to be similar to those of Fitzpatrick. On a conflict task Gottman's types were validating couples, who are high on conflict but wait a while in the discussion and ask questions before engaging in persuasion attempts; volatile couples, who are high in conflict and engage in persuasion attempts immediately; and, Conflict Avoiding couples, who are low in conflict and do not engage in persuasion attempts at all. All three types were equally likely to have stable marriages, but Cook et al. (1995) discovered that mismatches in influence functions between Gottman's types predicted divorce. Noller & Hiscock (1989) replicated most of Fitzpatrick's typology, except for a lack of effect of ideology on traditionalism. Johnson, Huston, Gaines, & Levinger (1992), however, developed a typology (using diary data of work and leisure) and found a very different typology with four major types: symmetrical, parallel, differentiated companionate, and role reversed. The question remains as to what fundamental mismatches in typology are dysfunctional.

Vanlear & Zietlow (1990) related Fitzpatrick's couple typology, marital satisfaction, and relational control. "Relational control" attempts to capture the sequential communication of power or status between spouses (e.g., from assertion to dominance, from collaborative deference to submission). Across couple types, marital satisfaction was associated with interactions confirming equality between partners (i.e., there was an absence of putting self or partner up or down). More important, the study revealed an interaction effect between couple type and relational control on marital satisfaction. This finding, along with those of Fitzpatrick and Gottman, further encourages researchers to challenge a uniformity assumption holding that all distressed and nondistressed couples are alike in their reactions to specific interactional behaviors.

Marital Interaction as Proximal Determinants of Family and Individual Well-Being

Historically, an important revolution took place in the study of family processes when interactional hypotheses were advanced to explain how specific family interactions were related to and perhaps responsible for an individual family member's psychopathology (e.g., Bateson, Jackson, Haley, & Weakland, 1956; Watzlawick, Beavin, & Jackson, 1968). This marked the beginning of a major conceptual shift away from individual personality as the primary determinant of personal well-being and distress and toward social interaction with significant others as among the most significant determinant of physical and psychological well-being. We will examine the evidence to emerge in the 1990s that represents the next evolution in this 30-year-old revolution.

Health and longevity. An outstanding review by Burman and Margolin (1992) crystallized ongoing work that the psychosocial quality of marriages is linked to mortality and morbidity. In searching for a mechanism for these linkages, they decided that the effect is indirect and nonspecific. Previous research has identified strong links between marital quality and health (e.g., c.f., Burman & Margolin, 1992), and between being married and better health and longevity (e.g., Berkman & Syme, 1979; Berkman & Breslow, 1983). Research now indicates that marital distress is associated with suppressed immune function (e.g., Kiecolt-Glaser et al., 1987; Kiecolt-Glaser, Malarky, Cacioppo, & Glaser, 1994), cardiovascular arousal (e.g., Brown & Smith, 1992; Ewart, Burnett, & Taylor, 1983; Ewart, Taylor, Kraemer, & Agras, 1991; Gottman, 1994; Gottman & Levenson, 1992; Levenson & Gottman, 1983, 1985), and increases in stress-related hormones such as catecholamines and corticosteroids (e.g., Kiecolt-Glaser et al.,1994). There is extensive literature that indicates, that for men, marriage offers health-buffering effects (e.g., Berkman & Syme; Berkman & Breslow; Bernard, 1982; Burman & Margolin, 1992; Shumaker & Hill, 1991) and that women are more likely to experience health-related prob-

lems if the marriage is distressed (Kiecolt-Glaser et al.; Gaelick, Bodenhausen, & Wyer, 1985; Ewart et al., 1991; Huston & Ashmore, 1986).

In the 1990s, researchers also broadened the search for associations between marital interaction and specific disorders. Many of these studies are somewhat weak in methodology but nevertheless point the way toward the benefits of more refined study.

Child outcomes. The decade of the 1990s has been rich in discovering linkages across interacting subsystems within the family, and to the child's peer relations as well. The mediating variable in many of these investigations is the concept of emotional regulation of arousal in children, variously defined. Marital conflict, distress, and dissolution are linked to problematic childhood outcomes including depression, withdrawal, poor social competence, deleterious health outcomes, lower academic achievement, and conduct-related incidents (Cowan & Cowan, 1987, 1992; Easterbrooks, 1987; Emery & O'Leary, 1982; Forehand, Brody, Long, Slotkin & Fauber, 1986; Gottman & Katz, 1989; Hetherington, Cox, & Cox, 1978; Katz & Gottman, 1991; Peterson & Zill, 1986; Porter & O'Leary, 1980; Rutter, 1971; Whitehead, 1979). For example, Cummings and colleagues found that children exposed to angry interadult conflict tend to use negative behavior such as physical aggression to cope (Cummings, Zahn-Waxler, & Radke-Yarrow, 1984). El-Sheikh (1994) found that preschool children from highly conflictual marriages displayed behavioral distress and heart rate reactivity when shown tapes of angry adult interactions. Brody, Arias, & Fincham (1996) reported a link between conflict-promoting marital attributions (e.g., seeing one's partner as selfish) and ineffective parent-child communication and to the child's attributions for negative parental behavior. Davies, Myers, and Cummings (1996) showed videotaped segments of adults engaged in brief verbal conflicts, with various endings to two groups of children, 7- to 9-year-olds and 13- to 15-year-olds. They reported that emotionally harmonious endings were crucial in creating a sense of emotional security in both groups of children, regardless of whether the adults' conflicts were about adult or child issues. Explicit verbal resolution was unnecessary. Across both age groups, female children reported more fear whereas male children offered more task-oriented interventions. See also Davies and Cummings (1994) for an attachment-based theory of emotional regulation.

Margolin, Christensen, and John (1996), in a sequential analysis, reported that distressed couples showed greater continuance of tensions and more spillover, particularly from marital to parent-child interaction. Nonetheless, there may at times be an inverse relationship between marital conflict and parent-child interaction. Mahoney, Boggio and Jouriles (1996) found that mothers were more empathic toward their 4- to 10-year-old, clinic-referred sons after an episode of marital conflict.

Gottman, Katz, and Hooven (1996) reported the results of a longitudinal study in which there were clear linkages between observed marital, parent-child, and child-peer interaction when the child was 4 years old. Furthermore, these linkages were mediated by the child's ability to regulate physiological arousal during parent-child interaction. These linkages predicted a range of longitudinal child outcomes, including child peer relations at age 8. The central concept of this research was "meta-emotion," which refers to the feelings and cognitions that parents had about their own and their children's anger and sadness. Katz and Gottman (1993) found that two distinct and uncorrelated patterns of marital interaction were related to distinct child outcomes. A mutually hostile pattern (which predicted marital dissolution) correlated with child externalizing behavior, whereas a husband angry and withdrawn pattern correlated with child internalizing disorders. Katz and Gottman (1997) reported that variables that index a "coaching" meta-emotion philosophy buffer children from almost all the deleterious consequences associated with marital conflict and dissolution. Coaching parents are aware of their child's emotion, they listen empathetically to the child's feelings, they help the child find words to express the emotion, and then they explore and implement strategies to deal with the emotion. There was a physiological substrate to this buffering effect. Katz and Gottman (1995) found that a central child physiological dimension, called "vagal tone," protected children from marital conflict. Broadly, vagal tone is related to the ability of the parasympathetic branch of the autonomic nervous system to calm the child down. The concept has become central theoretically for many researchers in organizing the bases for the infant's emotional and social development (e.g., Fox, 1994; Garber & Dodge, 1991; Thompson, 1994). For a review on the heritability of vagal tone and other autonomic indices, see Healy (1992).

Rogers and Holmbeck (1997) reported that more frequent and intense interparental aggression was associated with greater adjustment problems for children. They identified cognitive appraisal strategies that were maladaptive for the children and also noted that peer social support could buffer the negative effects of marital conflict.

Once again, after a hiatus of many years, links were again being made in the 1990's between the marital relationship and child sibling relationships. For example, among children aged approximately 4 to 9 years, Erel, Margolin, and John (1998) reported linkages between the wives' negative reports of the marital relationship, the mother-child relationship, and the older siblings' observed negative interaction. The younger siblings' negative interaction was linked with the mother-child and the differential mother-child interaction (across siblings). No such relationship was found for siblings' positive interactions.

Adolescent adjustment was also studied in the context of couples undergoing the transition to remarriage (Hetherington & Clingempeel, 1992). There were three groups of families: stepfamilies with a divorced custodial mother who was in the first months of a remarriage, families with a divorced custodial mother who had not remarried, and nondivorced families. Authoritative parenting was associated with positive adjustment of children in all family groups, but children in nondivorced families were more competent and had fewer behavior problems than children in divorced or remarried families. Nondivorced and remarried couples looked similar on the observational measures. There was remarkable stability in marital interaction over time; however, Deal, Hagan, and Anderson (1992) noted that the new stepfather is in a tenuous position in his new family, and "It may thus be that the primary difference between first marriages and remarriages lies not in the quality of the marital relationship but in the relative importance of the marital relationship within the whole family system" (p. 93).

Common comorbidities. Research in the past decade firmly established that marital interaction is also strongly associated with a broad range of outcomes for family members. Although the direction of cause and effect between marital interaction and spousal or child well-being is often unclear, the strength and importance of these relations documented in the 1990s will surely be pursued in the next decade.

1. Depression. Schmaling, Whisman, Fruzzetti, and Truax (1991) assessed the marital interaction behaviors associated with wives' depression. They found that active summarization by the wife was associated with fewer depressive symptoms and the absence of a diagnosis of major depression. Johnson and Jacob (1997) examined the marital interactions of control couples and couples in which either the wife or the husband was clinically depressed. Depressed couples were more negative than were nondepressed couples, and couples with a depressed wife were more negative than were couples with a depressed husband. McCabe and Gotlib (1993), in a study of depressed and nondepressed couples, reported that depressed wives became increasingly more negative in their verbal behavior over the course of the interaction, and they perceived the interactions as more hostile. After breaking the interaction into thirds, they found that only depressed couples were fairly immediately reactive to their spouse's behavior in the interaction.

Biglan et al. (1985) discovered an interesting set of interactions using sequential analysis, which led to an exciting flurry of theoretically based research. They examined the potential "function" of depressed and aggressive behavior in depression, using sequential analyses. They compared distressed and nondistressed couples, both of which included a depressed wife, with community control subjects. The findings suggested that the marital system might be covertly maintaining depressive symptoms and thereby suggesting the direction of the causal relationship between interaction and individual outcomes.

Biglan et al.'s study was criticized because they had difficulty obtaining nondepressed distressed couples. Schmaling and Jacobson (1990) conducted the full design, crossing high or low marital distress with high or low depression. They did not find interactional patterns that were unique to depression, but that these marital patterns were due to marital distress rather than depression. Similarly, Nelson and Beach (1990) found that the suppression of aggressive behavior was an artifact of the number of months the couples had been discordant. Interestingly, these means were long, 65.0 months for the nondepressed discordant and 94.5 months for the depressed discordant couples. Greater suppression of aggressive behavior was associated with shorter durations of discord within both groups of couples.

2. Violence. This decade saw a huge increase in observational research applied to the study of violent marriages. Burman and Margolin (1993)

used sequential analysis to compare the reenactments of physically aggressive, verbally aggressive, withdrawing, and nondistressed low-conflict couples. Physically aggressive couples were characterized by reciprocity of hostile affect and by rigid, highly contingent behavior patterns that were stronger and longer lasting than those of other couples. Nondistressed couples also reciprocated hostility but were able to exit these negative interaction cycles quickly. These sequential results were also obtained by Cordova, Jacobson, Gottman, Rushe, and Cox (1993) for actual marital conflicts in the laboratory rather than reenactments of conflicts at home. These investigators designed elaborate procedures to guarantee the safety of the abused women following actual marital conflicts in the laboratory. The data suggest that violent couples are missing an exit or withdrawal ritual from either reciprocated or escalating hostility.

Gottman, Jacobson, Rushe, and Shortt (1995) reported a typology of batterers based on heart rate reactivity. Two types of batterers were identified: Type 1 men, who lowered their heart rates from baseline to a marital conflict interaction, and Type 2 men, who raised it. Compared with Type 2 men, Type 1 men were more violent outside the marriage (to strangers, coworkers, friends, and bosses), were higher on antisocial and sadistic aggression personality scores, lower on dependency, and were more verbally aggressive toward their wives during marital conflict; wives responded to these men with anger, sadness, and defensiveness. Type 1 men were more likely to threaten their wives using a knife or gun, but both types had inflicted as much actual physical damage (see Jacobson & Gottman, 1998, for more detail). In a subsequent paper on divorce prediction, Jacobson, Gottman, Gortner, Berns, and Shortt (1997) reported among their batterers there was a high divorce/separation rate of 38% and that husband dominance and the wife's reports of his emotional abuse predicted the divorce. During the Time 1 marital interaction, more husband's contempt, less husband humor, less husband neutral affect, more wife defensiveness, and less wife humor predicted divorce. Physiological reactivity variables in both husbands and wives at Time 1 also predicted divorce.

As noted above, the research on violence in marriages has focused attention on the power aspects of marriage. In an unpublished dissertation, Rushe analyzed marital transactions in terms of power and control strategies and concluded that the violent marriage is basically engaged in a power struggle, which is reminiscent of the analyses carried out by Coan et al. (1997) on violent men rejecting influence from women. This notion of violence as a form of power struggle is distinctly different from the emphasis on anger management for batterers in the therapy literature. The power dimension of violence suggests a systematic use of violence to intimidate and control the abused wife, instead of periodic uncontrolled outbursts (see Jacobson & Gottman, 1998). Babcock et al. (1993) reported that violent couples were more likely than nonviolent distressed and happily married couples to engage in the husband demand–wife withdraw pattern. Also, within the domestically violent group, husbands who had less power were more physically abusive toward their wives. Power was measured by communication skill using a structured interview about previous arguments, and marital power outcomes was measured with the Who Does What scale (Cowan, Cowan, Coie, & Coie, 1978).

Positive affect and social support in violent couples have been studied by Holtzworth-Munroe, Stuart, Sandin, Smutzler, and McLaughlin (1997). They found that compared with nonviolent men, violent husbands in the Bradbury social support task (Bradbury & Pasch, 1994) offered less social support than nonviolent husbands. Instead, they were more belligerent/domineering, more contemptuous/disgusted, showed more anger and tension, and were more upset by the wife's problem.

3. Chronic Physical Pain. Romano et al. (1991) developed a methodology for the behavioral observations of chronic pain patients and their spouses. Pain and control groups could be discriminated with ratings of overt verbal and nonverbal pain-related behaviors. Spouses of pain patients showed more solicitous behavior than control spouses. Turk, Kerns, and Rosenberg (1992), however, reviewed evidence that suggested the complexity of the problem: positive attention from spouses to displays of pain were associated with reports of more intense pain, higher observed pain frequency, and greater disability; but, negative spouse responding to pain was associated with increased affective distress.

4. Hostility and Type-A Personality. Harralson, Suarez, and Lawler (1997) studied cardiovascular reactivity in hostile men and women (using the Cook-Medley Hostility scale, Cook & Medley, 1954) and the suppression of anger. Medalie and Goldbourt (1976) in a 5-year prospective study of marital quality and health, found that a wife's love

and support was associated with a reduced risk for the development of angina pectoris in husbands. Sanders, Smith, and Alexander (1991) reported a relationship between marital hostile/dominant behavior and Type A or Type B personality pattern in both husbands and wives. Brown and Smith (1992) found a strong relationship between hostility during marital interaction and heart rate reactivity.

5. Alcohol Abuse. Jacob and Krahn (1987) used three analytic methods to cluster the marital interactions of 96 couples (with the MICS) in which the husband was either alcoholic, clinically depressed, or a normal control. Cluster analysis revealed that there were three salient dimensions of the behaviors, negative evaluation, problem solving, and positive evaluation. Jacob and Leonard (1992) performed a highly detailed sequential analysis of these marital interactions. They found that couples with a depressed husband were different from the normal controls and couples with an alcoholic husband; couples with an alcoholic husband and normal controls were characterized by similar interaction patterns. Negative reciprocity was lower among the couples with depressed husbands, and husbands were less likely to follow their wives' problem solving with problem solving of their own.

6. Drug Abuse. Fals-Stewart and Birchler (1998) used their macro-CRAC coding system to study the marital conflict interactions of couples with drug-abusing husbands and a well-selected control group of non–substance abusing but distressed couples. They thus controlled for distress and varied only the active ingredient of drug abuse. No differences were found between couple types on the self-report inventories, but the couples with the substance-abusing husband interacted significantly differently than the distressed non–drug-abusing couples: they showed higher abusiveness, lower problem-solving skills, and more attribution of blame than the distressed non–drug-abusing couples. In addition, they found that the CRAC total score was negatively related to the husband's percentage of days abstinent during the year before entering substance abuse treatment.

Interrelationships Among Interaction Behavior, Cognition, and Physiology

The 1990s witnessed the blending of multiple measurements with observational measures in one investigation, which makes it possible to ask more sophisticated questions at the interfaces of these three domains. Notarius, Benson, Sloane, Vanzetti, and Hornyak (1989) pioneered a methodology for mapping the interface between perception and behavior in their experimental investigation of Weiss's (1980) concepts of positive or negative sentiment override and Gottman, Notarius, Gonso, and Markman's (1976) concept of editing. The concept of sentiment override implies a discrepancy between a spouse's subjective evaluation of partner's behavior and an outside observer's evaluation of the same precise behavior. The valence of any discrepancy between spouse and unbiased observer in evaluating the partner's behavior would define positive or negative sentiment override. "Editing," on the other hand, implies a precise sequence of interaction in which a spouse responds positively (or even neutrally) immediately after accurately perceiving his or her partner's behavior to be negative (i.e., the perception matches an unbiased observer's assessment of the immediate antecedent.) The important point is that these salient interactional processes can only be studied through an examination of the interface between behavior and perception. Applying log-linear modeling to the observational and subjective data, Notarius et al. (1989) found a surprising similarity among nondistressed wives and distressed and nondistressed husbands. The perception of distressed wives was heavily under the influence of negative sentiment override and these wives were least likely to edit out a negative reply to the their husbands' negative interactions. In contrast, nondistressed wives and distressed and nondistressed husbands were more likely to subjectively evaluate their partner's negative messages as neutral or positive and even when they made a negative evaluation, and they were less likely to respond negatively.

Bradbury and Fincham (1992) reported the results of two studies. In study 1 maladaptive attributions were related to less effective problem solving behaviors (coded globally with rating scales), particularly for wives. In study 2, a more detailed coding system was used combined with lag sequential analysis (Bakeman & Gottman, 1997; Bakeman & Quera, 1996). In this study, maladaptive attributions (controlling for marital satisfaction) were related to the reciprocation of negative partner behavior (hostility or rejection of partner's views). Attributions and behavior were most strongly related for distressed wives. Miller and Bradbury (1995) found that maladaptive attributions were related to hindering problem res-

olution on two tasks, a problem-solving and a social-support discussion. Attributions and behavior were more strongly related for wives than husbands and for distressed than for nondistressed spouses, again showing that cognitive factors function to impair interaction.

Vanzetti, Notarius, and NeeSmith (1992) studied specific and generalized expectancies that couples had for the outcomes of marital conflict interactions. Distressed couples expected fewer positive and more negative behaviors. Couples high on relational efficacy chose relationship-enhancing attributions more often that low-efficacy couples. Halford and Sanders (1990) used a video recall procedure to assess cognition of each partner during both a problem discussion and a relaxed discussion. Both domains discriminated distressed from nondistressed couples, and negative behavior in the interaction could be predicted better by accounting for both past cognition and behavior than by relying on past behavior alone. Thomas, Fletcher, and Lange (1997), using a thought stream video recall method pioneered by Ickes (e.g., Ickes, Stinson, Bissonnette, & Garcia, 1990), in a study of empathic accuracy, had couples review their own videotapes and describe their own and their partner's "on-line" thoughts and feelings. Partners' assumed similarity was related to marital satisfaction and the positivity of the verbal interaction. Mendolia, Beach, and Tesser (1996) found that the responsiveness to one's partner's self-evaluations was associated with favorable marital interaction during a conflict discussion, whereas responsiveness to one's own self-evaluation was associated with unfavorable marital interaction. These findings may suggest a possible mechanism underlying defensiveness. Fincham, Garnier, Gano-Phillips, and Osborne (1995) developed a new methodology for studying a couple's preinteraction expectations and the "accessibility" of marital satisfaction. To operationalize accessibility, they used two computer tasks and measured response latencies to specific questions about the spouse or the marriage. Response latencies moderated the relationship between satisfaction and expected partner behavior for husbands.

Because there is considerable complexity in studying each separate domain, it is not surprising that work exploring the interrelations that exist between behavior and cognition is not well advanced.

Physiology and Interaction

The use of physiological measures in studies of marital interaction has increased in the decade. Ewart, Taylor, Kraemer, and Agras (1991), in a study of essential hypertension, investigated high blood pressure and marital conflict. They reported that "not being nasty matters more than being nice." This was based on the finding that among women, supportive or neutral messages were unrelated to blood pressure, but hostile interaction and marital dissatisfaction were related. Among men, blood pressure was related only to speech rate. Levenson and Ruef (1992) reported a physiological substrate for empathy. They asked subjects to view a videotaped, 15-minute marital interaction of a couple and to indicate how a particular spouse reported feeling. When the rater's physiological responses matched those of the target spouse being observed, the rater was more accurate predicting the targeted spouse's feelings.

Gottman and Levenson (1992) combined physiological assessment with observational coding of interaction, specific affect, and the subjective evaluation of affect. Using an index based on the aggregate valence of all statements spoken during a speaker turn, two groups of couples were formed. The speaking turns of regulated couples were characterized by a positive slope (i.e., speaker turns were generally characterized by positive affect) over the course of a conversation, whereas the speaking turns of nonregulated couples were characterized by a negative slope (i.e., speaker turns were generally characterized by negative affect) for one or both spouses. Wives in nonregulated interactions showed higher levels of arousal than all other spouses; Gottman and Levenson speculated that this heightened arousal may play in role in the poorer health of wives in distressed marriages. Gottman et al. (1998), using interrupted time-series analysis, found that only husbands' physiological soothing (via self-soothing or through wives' humor) predicted marital stability among newlyweds.

Smith and Brown (1991) related husbands' and wives' MMPI cynical hostility scale scores to two marital interaction conditions, one in which they simply discussed a problem area, and one in which they received rewards for trying to persuade their wives in a win-lose contest. In husbands their cynical hostility scores in the win-lose condition was related to their own increased systolic blood pressure (SBP) and heart rate (HR) reactivity. Husbands' cynical hostility scores also

were related to increased systolic blood pressure reactivity in their wives. Wives' cynical hostility scores were unrelated to their own or to their husbands' physiological responses. Brown & Smith (1992) reported that in this win-lose condition, husbands' SBP increases were accompanied by increases in anger and a hostile, coldly assertive style. In wives, this same interactive style occurred, but it was not associated with their own elevated SBP.

Promising Trends

Extension to Representative and International Samples

There is a need to integrate sociological and psychological methodologies in the future. Psychological studies have relied on samples of convenience that have limited generalizability. A recent exception is Escudero, Rogers, and Gutierrez (1997), who, in a detailed microanalytic investigation also employing sequential analysis, studied marital interaction in Spain. They compared clinic distressed couples with nonclinic nondistressed couples. They used the Rogers relational coding system (Rogers, 1972), which directly codes power transactions, and the CISS for coding affect. They found that clinic couples displayed more domineering, more negative affect, and a stronger association between one-up control and negative affect than was the case for nonclinic couples. Krokoff, Gottman, and Roy (1988) conducted the only random sample study of blue- and white-collar marital interaction known to us. Among their findings, there was more negative affect and negative affect reciprocity for unhappy couples, regardless of occupational status. Zamsky (1997) compared the interactions of distressed and nondistressed, White and African American couples. Replicating interactional findings on more homogeneous groups, Zamsky found large differences between distressed and nondistressed couples, particular for the negative emotionally invalidating behaviors. Surprisingly, communication differences between couples were not attributable to factors of race, socioeconomic status, or any interaction between these variables and marital satisfaction.

Observational study of distressed and nondistressed couples continued in the 1990s to be used in international settings. In studies in Germany, Kaiser, Hahlweg, Fehm-Wolfsdorf, and Groth (1998) showed that a short-term psychoeducational program increased the frequency of self-disclosure, problem solving, acceptance, and nonverbal positive behavior and decreased the frequency of criticism relative to a control group. Hahlweg, Markman, Thurmaier, Engl, and Eckert (1998) showed that many of the changes in communication behaviors following the short-term intervention were maintained through a 3-year follow-up. Gender differences have frequently been observed in studies with U.S. couples (see Baucom, Notarius, Burnett, & Haefner, 1990), particularly concerning wives negativity, and similar differences were observed in the German samples. At the 3-year follow-up, wives in the treatment and control groups were observed to display more nonverbal negative behavior and more self-disclosure compared with their husbands, and wives in the control group displayed more criticism than their husbands.

In a study of distressed and nondistressed Dutch couples, Van Widenfelt (1995) confirmed a pattern of interactional differences that have been replicated in several studies carried out in the United States. She used the Codebook for Marital and Family Interaction (Notarius, Pellegrini, & Martin, 1991) to define interactional behaviors and found nondistressed couples to display significantly more statements to facilitate problem solving, to emotionally validate partner, and to self-disclose thoughts and feelings and distressed couples to display significantly more statements to inhibit problem solving and to emotionally invalidate partner. Van Widenfelt also observed wives in her Dutch sample to display significantly more statements that were emotionally invalidating of their husbands (e.g., criticisms, guilt inductions, character assassinations). Sequential analyses revealed the interaction of nondistressed couples to be characterized by statements that facilitated problem solving, followed by self-disclosure or emotional validation. In contrast, the interaction of distressed couples was characterized by a high frequency of emotional invalidation that was followed by statements that either facilitated or interfered with problem solving, but without any consequent emotional validation.

Observing in Naturalistic Settings

Melby, Ge, Conger, and Warner (1995), in an elegant analysis, compared a marital discussion and a problem-solving task and reported on the importance of task in detecting positive marital interaction. There have been very few studies of

marital interaction outside laboratory settings, and this is a direction that needs continuing exploration. An exception is Vuchinich (1985), who studied naturally occurring dinner-time disputes. He found that in 200 examples of conflict, 67% ended in standoffs in which no one yielded and the topic was dropped. In 33% of the conflicts, the most frequent reaction was withdrawal, in which one person refused to continue the discussion. The reaction of submission, in which one person gave in or compromised was rare. Nonetheless, even if not naturalistic, laboratory observation may have validity, particularly if it can be shown to predict important marital outcomes. Older evidence shows that interaction in the lab underestimates differences between distressed and nondistressed couples, compared with tape recordings made in couples' homes (Gottman, 1979). More recently, Hayden et al. (1998) related the mealtime interactions of families to multiple levels of family assessment; the measures were strongly related to both mother and father involvement. The use of a marital interaction diary was pioneered in a study by Halford, Gravestock, Lowe, and Scheldt (1992) in an attempt to discover the behavioral ecology of stressful marital interaction. For example, they found that most stressful interaction occurred in the kitchen during the weekdays and were associated with everyday life stresses; the most stressful interactions resulted from one partner leaving the scene.

Focus on Sequences or Patterns of Interaction

Either through using various tools of sequence analysis, or through the direct observation of sequences, the observational study of marital interaction expanded to the analysis of patterned communication. Probably the most important of these patterns was the investigation of the demand-withdraw pattern. Most commonly, this is observed as wives demanding change (through emotional requests, criticism, and complaints) and husbands withdrawing (through defensiveness and passive inaction). Christensen and his students pioneered the study of this sequence (Christensen & Heavey, 1990; Sagrestano, Christensen, & Heavey, 1998) and showed that this pattern was most likely when discussing a wife issue and could be reversed for a husband issue (Heavey, Layne, & Christensen, 1993). Given that a consistent finding is that women typically raise most of the issues in most marriages, however, this finding may be of only theoretical interest. Heavey, Christensen, and Malamuth (1995) demonstrated that the withdrawal by men and the female-demand/male-withdraw pattern predicted decline in wives' marital satisfaction 2.5 years later.

Demand-Withdraw Pattern and Power Revisited

The wife-demand/husband-withdraw pattern does not imply that the wife is dominant in this interaction pattern. The husband's withdrawal could be driving the wife's demandingness, for example. In an innovative analysis, Klinetob and Smith (1996) continuously coded demand and withdraw behaviors for both husband and wife. Using bivariate time-series analysis and controlling for autocorrelation, they assessed the direction of influence between demand-withdraw behaviors (and between withdraw-demand) in both husbands and wives. They found that in the wife-demand/husband withdraw pattern, the overwhelming percentage of couples showed a bidirectional influence pattern (especially when it was her issue), with wife dominance as the next most frequent pattern. For the husband-demand/wife-withdraw pattern, once again a bidirectional influence pattern was most common, with husband dominance the next most frequent pattern (particularly when it was his issue). This was an elegant approach to the study of marital power.

The Importance of Positive Affect

Part of the accomplishments in the study of marital interaction over the last 20 years can be traced to the use of common methodologies and data analytic strategies in independent laboratories throughout the United States, in the Netherlands, German, and Australia. One feature of the typical paradigm was a focus on conflict discussions and the negative behaviors that marked the interaction of distressed couples in this context. As we enter the next decade, interactional researchers have begun to look beyond conflict to better understand the contribution that intimacy and other affectional processes makes to relationship satisfaction and stability.

The importance of looking at positive affective reactions is suggested by several studies of marital interaction. Gottman et al. (1998) found that only positive affect during conflict discussions in the early months of marriage predicted both later divorce and the marital happiness of stable couples. Pasch and Bradbury (1998) and Pasch, Bradbury, and Davila (1997) studied social support in mar-

ital interaction using a task of only moderate conflict in which spouses discussed personal, nonmarital issues. Longitudinal data showed that wives' "support solicitation and provision behaviors" predicted marital outcomes 2 years later, independent of the negative behaviors exhibited during marital conflict. Beach, Martin, Blum, and Roman (1993) reported that coworkers and marital quality played a significant role in reducing negative affective symptoms (depression and interpersonal stress).

De Koning and Weiss (1997) studied the use of instrumental humor and found that it appears to function differently during the problem-solving conversations of younger couples married an average of 14 years than during the conversations of older couples married an average of 39 years. Among younger couples, instrumental humor was negatively associated with marital satisfaction, but among older couples, instrumental humor was strongly associated with marital happiness. The authors speculated that humor many function as an avoidance maneuver in the younger couples and more genuinely represent positive affect in the older couples. Cordova (1998) is developing a promising behavioral model of intimacy. Intimacy is operationalized as a dyadic event sequence in which one partner's expresses a personal vulnerability and the spouse responds in an accepting, nonpunitive manner. Fruzzetti and Rubio-Kuhnert (1998) found that intimacy, also assessed as a disclosure-validation sequence using Fruzzetti's Intimacy-Distance Process Model Coding System (1995), was significantly associated with relationship satisfaction and individual well-being, both cross-sectionally and longitudinally. Clearly the field is just beginning to explore the interactional basis of marital intimacy.

Immediate Interactional Outcomes

Haefner, Notarius, and Pellegrini (1991) focused on immediate outcomes of a single problem-solving conversation. Satisfaction with an immediately preceding conversation was primarily determined by partners' positive behaviors, especially wives' emotional validation and husbands' problem-solving facilitation. Dimitri-Carlton (1997) also examined proximal interactional determinants of conversational outcomes: Feeling supported versus feeling undermined by one's partner. Interestingly, a set of mild negative behaviors was found to be most predictive of feelings of support and undermining.

Personality Revisited

Karney and Bradbury (1997), in a longitudinal study, examined the relationship between neuroticism, marital interaction, initial levels of marital satisfaction and rates of change in marital satisfaction. They found that neuroticism was associated with initial levels of marital satisfaction but not with rates of change in marital satisfaction. On the other hand, behavior during marital interaction (total positive minus negative codes using the Sillars [1982] coding system) was associated with rates of change in marital satisfaction, but not with initial levels. Kobak and Hazan (1991), using an attachment theory framework with Q-sort methodology, reported that the accuracy of spouse's internal working models as relying on one's partner and the partner being psychologically available were related to observers' positive ratings of communication in problem-solving and confiding tasks. Sayers and Baucom (1991) studied the relationship between femininity and masculinity and marital interaction using the MICS. Femininity was positively related to greater rates of negative behavior among both husbands and wives. A sequential analysis supported the idea that wives' femininity was associated with greater negative reciprocity of the wives. Men's femininity was associated with husbands' tendency to terminate fewer negative sequences of behavior in comparison with their wives. High masculinity of the wives was related to shorter sequences of negative behavior.

Stress Spillover Management

In 1987, Jacobson, Schmaling, and Holtzworth-Munroe conducted a 2-year telephone follow-up study of the couples from their marital therapy study. They studied two groups of couples, those who maintained change and those who relapsed. The only significant difference between the two groups was in the management of stress from nonmarital situations to the marital relationship. Couples who relapsed had more spillover of stress into the marriage than those who maintained change. A Swiss psychologist, Bodenman (1997a) reported that "dyadic coping" with stress predicted longitudinal outcomes (stability and happiness) in a 2-year study of 70 Swiss couples. Bodenman has developed an intervention program focusing of dyadic coping with stress (Bodenman, 1997b). This is an area that needs a great deal of development.

Final Thoughts

Behavioral observation of marital interaction contributed significantly to our understanding of marriage in the last decade. We would like readers to carefully note that the construct of marital interaction might be assessed using methodologies other than direct observation. For example, a spouse might be asked to report how often his or her partner is critical. This question assesses a personal construction of the marital system; it does not assess actual interaction. Given the cost of observational measures, it is all too tempting to move back to less expensive methodologies. We can see the pull to develop inexpensive questionnaires to assess theoretical constructs that have been derived from careful observational study and validated by cross-sectional and longitudinal study. We believe this would be a mistake. Although it will be necessary to use self-report measures to tap phenomenological constructs of importance, we should not abandon the observational methods that have contributed to the decade's advances in understanding relationships. We must strive to develop reliable measures of phenomenological constructs and anchor these measures to the most reliable and valid data that we have available on couples and families: the observation of interaction. Observational measures will always be most informative data source we will ever get about process, which will be the richest source we will ever have for describing and building theory.

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