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The Longitudinal Course of Marital Quality and Stability: A Review of Theory, Method, and Research

Benjamin R. Karney and Thomas N. Bradbury
University of California, Los Angeles

Although much has been learned from cross-sectional research on marriage, an understanding of how marriages develop, succeed, and fail is best achieved with longitudinal data. In view of growing interest in longitudinal research on marriage, the authors reviewed and evaluated the literature on how the quality and stability of marriages change over time. First, prevailing theoretical perspectives are examined for their ability to explain change in marital quality and stability. Second, the methods and findings of 115 longitudinal studies—representing over 45,000 marriages—are summarized and evaluated, yielding specific suggestions for improving this research. Finally, a model is outlined that integrates the strengths of previous theories of marriage, accounts for established findings, and indicates new directions for research on how marriages change.

For many people, marriage begins as a source of satisfaction and fulfillment but ends as a source of frustration and despair. How does an endeavor approached with so much optimism lead so frequently to disillusionment? How do marriages change? Addressing these questions is important because nearly all people marry in their lifetime (Bjorksten & Stewart, 1984), yet nearly two thirds of all first marriages are expected to end in separation or divorce (Castro-Martin & Bumpass, 1989). Subsequent remarriages are common and are even more likely to end (Brody, Neubaum, & Forehand, 1988; Cherlin, 1992). Moreover, whereas satisfying marriages tend to buffer spouses from psychological distress and negative life events (e.g., Waltz, Badura, Pfaff, & Schott, 1988), marital distress and instability have negative consequences for the physical and emotional well-being of spouses (Bloom, Asher, & White, 1978) and their children (Emery, 1982; Grych & Fincham, 1990) and are leading reasons why people seek psychological counseling (Veroff, Kulka, & Douvan, 1981).[1]

A basic premise of this article is that a thorough understanding of how marriages develop and change would be important in its own right and would contribute to the prevention and treatment of marital dysfunction (see Bradbury & Fincham, 1990b). A second basic premise is that an understanding of marital development is best achieved with data collected in longitudinal research designs. The extensive literature on marriage is based primarily on cross-sectional data and, although it has proven valuable in several respects, this work reveals little about how marriages may become more or less satisfying and more or less stable over time. The limitations of this research for understanding how marriages succeed and fail have been recognized, and the calls for longitudinal research on marriage have been numerous (e.g., Belsky & Pensky, 1988; Bowerman, 1964; Glenn, 1990; Gottman, 1991; Hicks & Platt, 1970; Hollingsworth, 1939; Levinger, 1980; Locke, 1968; Markman & Floyd, 1980; Raush, Barry, Hertel, & Swain, 1974).

In response to these calls, longitudinal studies of marriage are appearing in the research literature at an increasing rate (see Berscheid, 1994). However, when longitudinal studies are reported, it is common even for leading researchers to grossly underestimate the amount of previous research devoted to investigating change in marital quality and stability. Indeed, we believe that many would be surprised to learn that over 100 longitudinal studies of marriage have been published to date. This lack of awareness no doubt owes to the fact that the research has been spread across many decades and disciplines, and that, to our knowledge, there is no single source that identifies, analyzes, and integrates this literature. Researchers therefore lack a common base of knowledge for interpreting their studies or for designing new studies, and as a result new data are unlikely to accumulate to refute theory or inform clinical interventions.

In view of the basic and applied value of a clearer account of how marriages succeed and fail, the increasing amount of longitudinal research on this topic, and the absence of a comprehensive analysis of this research, the purpose of this article

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Correspondence concerning this article should be addressed to Benjamin R. Karney or Thomas N. Bradbury, Department of Psychology, University of California, 405 Hilgard Avenue, Los Angeles, California 90024-1563. Electronic mail may be sent via Internet to ibmdbrk@mvs.oac.ucla.edu (Benjamin R. Karney) or bradbury@psych.sscnet.ucla.edu (Thomas N. Bradbury).

[1] Throughout this article, the terms *marital quality, marital satisfaction, marital adjustment,* and *marital distress* are used interchangeably to refer to spouses' evaluations of their marriage (see Fincham & Bradbury, 1987a). In contrast, the terms *marital stability* and *marital instability* are used to refer to the status of the marriage (i.e., whether it is continuing or the spouses have separated or divorced).

is to review and evaluate the available literature and to offer an integrative framework to guide future research on how the quality and stability of marriages change over time. The article is organized into four sections. First, theoretical perspectives that have influenced longitudinal research on marriage are examined for their ability to explain how marriages change. Second, the longitudinal research itself is reviewed, with regard to both the methods that have been used and the findings that have resulted. Third, a model is proposed that integrates the strengths of current theories of marriage, accounts for replicated findings, and suggests specific directions for future longitudinal research on marriage. A concluding section identifies immediate research priorities and explores the broader implications of this review.[2]

Review of Theoretical Perspectives on Marriage

Four theoretical perspectives that have influenced research on marriage are reviewed in this section to provide a background for interpreting the large body of longitudinal data and to assist in developing an integrative framework that might inform subsequent research on marital development. Although an analysis of theory is important in any area, the need is particularly acute in the study of marriage because, as we conclude later in the article, much of the longitudinal work has not been explicitly theoretical in orientation and because subsequent progress in understanding how marriages change is likely to depend heavily on the quality of the available models. The four major theoretical perspectives that have influenced marital research to date are evaluated in terms of three criteria.

First, the theory should *encompass a full range of possible predictors of marital outcome* and should *provide links between different levels of analysis* (Furman, 1984; Kellam, 1986; Newcomb & Bentler, 1981; Raush, Greif, & Nugent, 1979; S. W. White & Mika, 1983). In the search for predictors of marital outcome, researchers have examined such macro-level variables as cultural norms as well as such micro-level variables as the number of negative statements spouses make in an interaction. However, Riskin and Faunce (1972) pointed out that "noticeably lacking . . . are the intermediate level concepts and steps through which to relate the low-order observational data and variables to high-order abstractions" (p. 400). Many researchers have since echoed this sentiment (e.g., Furman, 1984; Newcomb & Bentler, 1981; Teachman, Polonko, & Scanzoni, 1987). Influential theories of marriage therefore are evaluated in terms of whether they acknowledge the full range of possible influences on couples and whether they suggest how variables at different levels of analysis affect each other.

Second, the theory should *specify mechanisms of change within marriage* (Duck & Sants, 1983; Furman, 1984; Gale & Vetere, 1987; Glenn, 1990; O'Leary & Smith, 1991; Rutter, 1981). Theorists have argued that a defining feature of any close relationship is that it evolves over time. A major task of a theory of marriage is to describe how development and change come about. Including this criterion emphasizes the importance of *explaining* how marriages achieve different outcomes, a goal that is related to but likely to be more difficult than the actuarial task of *predicting* which marriages will succeed or fail.

Third, the theory should *account for variability in marital outcomes between couples and within couples over time* (Baltes, Reese, & Lipsitt, 1980; Belsky & Rovine, 1990; Glenn, 1990; Wamboldt & Reiss, 1989). A complete theory of marriage would explain more than simply why couples divorce. A full understanding of marriage would account for the range of possible marital outcomes, including divorce at different marital durations, marriages that persist despite dissatisfaction, marriages that decline in quality and then improve, and marriages that endure stably. A theory should explain how different couples or individuals reach different outcomes and why different couples or individuals may obtain different outcomes at different times over the course of a marriage.

Although the theories reviewed below have influenced much of the longitudinal research on marriage, they were not always offered with the goal of explaining marital change per se; it is therefore possible that no one perspective meets all three of these criteria. Nevertheless, examining theoretical perspectives on marriage in terms of the standards that such a theory must meet is useful for identifying what each theory might contribute to a model of marital development. At the outset, we emphasize that our review is necessarily brief; detailed discussions of the theories are cited where appropriate.

Social Exchange Theory

Overview. Social exchange theory, the most cited theoretical perspective in research on marriage and close relationships, draws from Thibaut and Kelley's (1959) theory of interdependence and asserts that "relationships grow, develop, deteriorate, and dissolve as a consequence of an unfolding social-exchange process, which may be conceived as a bartering of rewards and costs both between the partners and between members of the partnership and others" (Huston & Burgess, 1979, p. 4). Levinger (1965, 1976) was among the first to apply the concepts of social exchange to marriage. He argued that marital success or failure depends on an individual's weighing of *the attractions of the relationship,* or all the aspects of the relationship that may be rewarding (e.g., emotional security, sexual fulfillment, and social status), *the barriers to leaving the relationship* (e.g., social and religious constraints and financial expenses), and *the presence of attractive alternatives* outside the relationship (e.g., preferable partners and escape from the current relationship). According to this perspective, marriages end when the attractions of the relationship are few, the barriers to leaving the rela-

[2] Detailed consideration of three well-developed subfields of marital research has been excluded from our discussion. Specifically, treatment outcome studies are omitted because the present concern is with marriages as they develop and change naturally, rather than as a result of clinical intervention (see Hahlweg, Baucom, & Markman, 1988; Shadish et al., 1993). Research on the transition to parenthood is omitted from the summary of studies because this is a well-developed literature in its own right, and thorough reviews of this research are available (see Belsky & Pensky, 1988; Michaels & Goldberg, 1988). Because this topic is directly relevant to understanding the course of marriage, however, it is discussed in the integrative section of the article. Finally, research on remarriage is omitted from the review of studies (see Spanier & Furstenberg, 1987), but because remarried and first-married couples often have been examined together, results involving data from remarried couples are necessarily included.

tionship are weak, and the alternatives to the relationship are enticing.

Using these ideas, Lewis and Spanier (1979, 1982) formed an exchange typology of marital relationships in which marital satisfaction and marital stability are conceived as orthogonal dimensions of marital outcome. Marriages can be satisfied and stable, satisfied but unstable, unsatisfied but stable, or unsatisfied and unstable; social exchange concepts explain couples' placement within specific quadrants. For example, unsatisfied-stable couples are those for whom the attractions within the relationship may be low, but the barriers to leaving the relationship are prohibitively high. Satisfied-unstable relationships are those for whom attractions within the relationship may be adequate, but barriers to leaving the relationship are low and alternatives outside the relationship are even more attractive.

Critique. A strength of social exchange theory, and a major source of its popularity, is that many types of variables can be incorporated into its framework. For example, within the concept of attractions, Levinger (1976) placed micro-level variables such as perceptions of companionship as well as sociodemographic variables such as occupational status. Barriers were also conceived broadly and included macro-level variables such as community norms against divorce as well as more specific within-spouse feelings of obligation. For most sets of variables, social exchange suggests how those variables may combine to influence marital outcomes. A second strength of social exchange is that, by clearly distinguishing marital satisfaction from marital stability, the theory potentially can account for a variety of marital outcomes. Lewis and Spanier's (1979, 1982) typology addresses varieties of success and failure in marriage, in that it allows for unhappy couples who remain together and for relatively happy marriages that nevertheless dissolve.

On the other hand, Lewis and Spanier's (1979, 1982) typology also reveals an important weakness of the social exchange perspective. Whereas it acknowledges that "the quality and stability of a relationship may vary over the life cycle" (Lewis & Spanier, 1979, p. 286), social exchange theory does not address how change in marriage comes about. Social exchange describes marriages that should be stable or unstable, but it does not speculate about how an initially stable marriage might become unstable over time. A temporal perspective is also lacking from conceptualizations of attractions and barriers. Although the theory links concurrent perceptions of attractions and alternatives to marital satisfaction and stability at a given moment, it does not explain where these perceptions originate or how they develop. Instead, this view maintains that "when persons are dissatisfied with their relationship they are apt to view it as inequitable; and . . . when they are satisfied they are likely to see it as both equitable and equal" (Huston & Burgess, 1979, p. 12). Thus, the variables that serve as attractions and barriers for a given couple are likely to change as spouses' evaluations of the relationship change. One must look outside the theory to understand what constitutes attractions and barriers at different points in the course of a marriage.

Summary. Levinger (1976) called his original formulation of exchange theory a "perspective on marital dissolution" (p. 21). Within that scope, social exchange is a useful tool, explaining how two couples who are equally dissatisfied with their marriages might have different thresholds for divorce. However, in its current form, the theory does not address the question of how couples reach the brink of dissolution, nor does it explain how couples who enter marriage satisfied with the attractions within the relationship become more or less satisfied with those attractions over time.

Behavioral Theory

Overview. Behavioral theories of marriage, like social exchange, have their roots in the work of Thibaut and Kelley (1959). The focus of social exchange theory, however, is primarily intrapersonal. Marital satisfaction is understood to be the result of each individual's weighing of attractions and alternatives, and those attractions and alternatives are conceived to be "aspects of perception, not action" (Gottman, 1982, p. 950; see also Newcomb & Bentler, 1981). Although rewards and costs are also basic elements of behavioral conceptions of marriage, instead the focus is on the interpersonal exchange of specific behaviors. Research in this tradition has concentrated on behaviors exchanged during problem-solving discussions and has been guided by the premise that rewarding or positive behaviors enhance global evaluations of the marriage while punishing or negative behaviors do harm (e.g., Markman, 1981; Stuart, 1969; Wills, Weiss, & Patterson, 1974). This basic framework has been expanded to include the attributions that spouses make for partner behaviors (e.g., Baucom, 1987; Bradbury & Fincham, 1990a; Weiss, 1984). Unlike social exchange theory, however, which focuses on these perceptions as direct determinants of marital outcome, the behavioral model suggests that cognitive responses affect marriage through their influence on subsequent interaction behaviors. Over time, the accumulation of experiences during and after interaction are thought to gradually influence spouses' judgments of marital quality (Bradbury & Fincham, 1991; Gottman, 1990, 1993b).

Critique. A strength of this approach is that it suggests a mechanism to explain how judgments of marital satisfaction change over time. Specifically, "spouses learn on the basis of their interactions and the appraisals that follow from them whether or not they are in a rewarding relationship" (Bradbury & Fincham, 1991, p. 134). For satisfied couples, each satisfying interaction justifies continued satisfaction, which in turn makes further satisfying interaction more likely. Marital distress, on the other hand, may be largely a consequence of a couple's difficulty dealing with conflict. As Markman (1991) noted, "to the extent that normal marital disagreements are not handled well, unresolved negative feelings start to build up, fueling destructive patterns of marital interaction and eventually eroding and attacking the positive aspects of the relationship" (p. 422). A more detailed discussion of the formation of these patterns is offered by *coercion theory* (Patterson & Reid, 1970), which describes how spouses reward and shape each other's negative behaviors inadvertently. If repeated nagging from one spouse ultimately results in a desired behavior from the other spouse, for example, the nagging is reinforced and is likely to recur. Gottman and Levenson's (1986; Gottman, 1993b) *escape conditioning model* makes the similar prediction that behaviors leading to decline in both spouses' level of emotional arousal will be negatively reinforced. To the extent that aversive behaviors, such as expressing anger or contempt, are followed by de-

clines in arousal, these behaviors will increase in frequency and destructive patterns of behavior may become entrenched. Each of these mechanisms describes marriage as a dynamic phenomenon, characterized by an ongoing feedback from the interaction between spouses to the sentiments of each spouse about the marriage and back again. In this respect, behavioral theory has a perspective on change in marriage that appears to be lacking in social exchange theory.

However, the strong focus on interaction also can be viewed as a weakness of this model. Marital interaction, to be understood fully, probably needs to be examined within the broader context of spouses' lives (Davis, 1982; Raush et al., 1979; Smith, Vivian, & O'Leary, 1990). Within the behavioral tradition, micro-level analyses of interaction have been emphasized at the expense of considering the circumstances in which interaction occurs. The sources of marital interaction patterns, and the variables that affect day-to-day variation in these patterns, have been outside the scope of behavioral models of marriage. As a result, there have been few attempts to link macro-level variables—such as personality, education, or life events—to behavior exchange, despite the strong possibility that these variables affect marital interaction.

A second weakness of behavioral theory is that it explains only a limited range of marital outcomes. For example, behavioral models explain within-couple variation in marital satisfaction but only in one direction. Coercion theory and the escape conditioning model suggest how negative behaviors might develop into entrenched destructive patterns, but they do not explain how initially adaptive communication patterns might deteriorate over time or how couples lacking adequate skills might improve spontaneously. Also unaddressed is the question of when distress leads to divorce. The presence of harmful interaction patterns characterizes some couples that divorce after a few years of marriage and others that remain married despite years of conflict. Behavioral theory alone does not account for variation in marital duration.

Summary. Behavioral models make unique contributions to an understanding of marital development. They offer a framework for investigating the behaviors that spouses exchange, and they suggest plausible and concrete mechanisms for change in judgments of marital quality. On the other hand, perhaps as a result of this detailed focus on interaction, these ideas have not yet been incorporated into a broader developmental perspective on marriage.

Attachment Theory

Overview. Attachment theories of marriage draw from work by Bowlby (1969) on relationships between infants and their primary caregivers. Bowlby suggested that the nature of this first close relationship determines a child's internal working model of what close relationships are like, so it should determine the nature of an individual's close relationships throughout the life course. Although in theory the variety of possible infant–caregiver bonds is infinite, in practice researchers have emphasized three major styles of early attachment (Ainsworth, Blehar, Waters, & Wall, 1978). *Secure attachment*, the style most commonly observed between mothers and infants, is thought to be the ideal and describes parents who are available for their children and children for whom the attachment to the caregiver provides a base for exploration of novel stimuli. *Anxious/ambivalent attachment* describes parents who are inconsistently responsive to their infants, resulting in infants who simultaneously crave and resent the caregiver. *Anxious/avoidant attachment* describes parents who are not responsive to their infants and infants who, therefore, avoid contact with the caregiver and are not distressed by separations.

Hazan and Shaver (1987, 1994; Shaver, Hazan, & Bradshaw, 1988) applied these ideas to adult relationships directly, arguing that close relationships between adults reflect enduring styles of attachment developed in infancy and early childhood, and that the attachment styles described by Ainsworth et al. (1978) accurately describe styles of adult attachment as well. This perspective emphasizes that individuals' early experiences in close relationships shape the nature and development of subsequent relationships in adulthood. Relationship satisfaction, therefore, "depends largely on the satisfaction of basic needs for comfort, care, and sexual gratification" (Hazan & Shaver, 1994, p. 13) and the success of a given relationship will rest on whether each spouse trusts that the partner can fulfill those needs.

Critique. According to attachment theory, marital success or failure will be affected by enduring aspects of each partner's relationship history and family of origin. A strength of this approach is that it suggests links between levels of analysis that are underemphasized in or absent from exchange and behavioral theories. In its focus on continuity over the life span, however, attachment theory often overlooks sources of change and variability in marriage. For example, attachment theory draws attention to the importance of personal history in determining the relationship needs of each partner, but it does not describe how personal histories affect the development of a marriage once two people with different relationship needs come together. Although the theory suggests that "the relative importance of various needs changes over time" (Hazan & Shaver, 1994, p. 14), the sources of change in relationship needs and how this change comes about remain to be specified. Similarly, the theory maintains that marriages remain satisfying to the extent that partners are able to meet each other's new needs as they arise, but it does not address the possibility that spouses' abilities to meet each other's needs may change over time, even when the needs themselves remain stable. In other words, attachment theory does not explain how individual differences in personal history affect the development of a marriage from beginning to end.

Attachment theory also has not addressed sources of variation between couples. Whereas the theory asserts that individuals with secure attachment styles should have longer relationships, it also maintains that under certain circumstances individuals with anxious/ambivalent or anxious/avoidant styles can have enduring relationships as well. The variables that influence marital success or failure for such individuals, however, await specification, as do the sources of variability in marital outcome between couples that share the same attachment style. Finally, the theory does not explain when in the course of a marriage unmet attachment needs lead to divorce.

Summary. Attachment theory draws attention to the role of personal history in marriage, a variable overlooked by social exchange and behavioral theories. On the other hand, whereas

attachment theory could be called developmental in the sense that it suggests links between childhood experience and adult relationships, it does not provide a developmental view of the marriage itself. Attachment theory alone does not explain how couples change over time or why some couples develop differently from others.

Crisis Theory

Overview. Crisis theory derives from Hill's (1949) efforts to explain how families react to stressful events. Why do some families rise to face challenges and adverse situations whereas others appear to give up or deteriorate? According to Hill's ABCX model, stressful events (A) require some adaptation from a family. Families have varying levels of concrete resources (B) and may arrive at different definitions of events (C) that modify the impact of those events. In any given circumstance, the extent to which available resources are sufficient to meet the requirements implied by a family's definition of an event determines the nature of the crisis (X) and whether a family will recover successfully. Successful recovery involves adaptation that "preserves family unity and enhances the family system and member growth and development" (McCubbin & Patterson, 1982, p. 45).

McCubbin and Patterson (1982), noting that Hill's (1949) original model focused only on variables that exist before a crisis occurs, added a temporal perspective to crisis theory. They expanded the basic model in two ways. First, they acknowledged that responses to an event can develop over time. Second, they acknowledged that responses to an event may have implications for responses to future events. In their resulting double ABCX model, each element of Hill's original model is thought to have its initial meaning and a meaning that emerges over time. For example, the initial efforts to cope with an event (A) can create added stressors, a process McCubbin and Patterson called *pile-up*. An initial level of resources (B) can be enhanced in response to an event. In addition to the initial perception of the event (C), perceptions of the subsequent coping should also affect eventual outcomes. Finally, a response to a crisis (X) can result in both adaptation and maladaptation.

Although crisis theory was designed to explain the functioning of families, some marital researchers have used the theory to explain and predict marital outcomes. These efforts assume that declines in marital satisfaction and the occurrence of separation or divorce reflect failures to recover from crises. In general, couples experiencing more stressful events should be more vulnerable to negative marital outcomes, and this effect should be moderated by the couple's levels of resources and the couple's definitions of events.

Critique. Crisis theory expands the scope of thinking about marriage in important ways. For instance, in the perspectives discussed previously, marriages are thought to be influenced primarily by variables originating either within or between the spouses. When variables outside the relationship have been addressed, as in the alternatives described by social exchange theorists, they are described primarily as operating on each spouse's perceptions of the relationship. In contrast, crisis theory is the first perspective to focus on the direct effects of external events on processes within spouses (definitions of the event) and between spouses (adaptation). Thus, in crisis theory, married couples are placed in an ongoing interaction with their external world.

Crisis theory also addresses aspects of marital outcome for which other theories do not account. As with the theories already discussed, crisis theory acknowledges that some marriages are more likely to endure than others. However, only crisis theory offers a means of predicting when declines in marital satisfaction or stability are likely to occur. According to crisis theory, it is the failure to adapt to stressful events that precipitates problems in marriages and families. Until such events occur, even vulnerable marriages may remain stable. By acknowledging the role of external events in the marital development, crisis theory addresses questions of within-couple variation and marital duration that other theories do not.

The primary limitations of crisis theory result from a failure to specify mechanisms of change in the model's basic constructs. According to crisis theory, marriages change in response to the need to adapt to stressful events. Rarely, however, have crisis theorists addressed the specific coping responses that lead to either adaptation or maladaptation. Similarly, the development over time of the constructs that influence coping has received little attention. For example, the double ABCX model (McCubbin & Patterson, 1982) acknowledges that resources and perceptions of events can change, but it does not indicate how such changes might occur or what the variables are that might influence them.

Summary. Crisis theory makes several contributions to an understanding of marital development. More directly than the other theories discussed in this section, crisis theory points out that events external to a couple influence the course of marriage. Recognizing these effects offers the possibility of predicting when in the course of a marriage initially vulnerable couples may experience changes in their satisfaction and how such couples may yet endure. On the other hand, the constructs of crisis theory have not been linked to specific processes within the marriage. As a result, crisis theory acknowledges the importance of external events to changes in marriage, but it does not explain how such changes come about.

Conclusion

We have reviewed the most influential theoretical perspectives on marriage to evaluate what they can contribute to a longitudinal theory of development and change in marriage. The review must be qualified in several ways. First, the perspectives we reviewed were not designed to be comprehensive models of marriage and marital change, and thus they should not be faulted for failing to meet standards for which they were not intended. Second, the review has been illustrative rather than exhaustive so that only key principles of the theories reviewed were covered. Third, despite their relevance to understanding marriage, perspectives that have not been as influential in shaping research, such as interactionist perspectives (e.g., Berger & Kellner, 1964), psychodynamic views (e.g., Mittlemann, 1956), and systems theory perspectives (e.g., Steinglass, 1978), were not discussed. Fourth, important steps are being taken to rectify many of the weaknesses we identified and to elaborate each perspective beyond the basic frameworks we presented; an

Table 1
Evaluation of Theoretical Perspectives on Marriage

Criterion	Social exchange theory	Behavioral theory	Attachment theory	Crisis theory
Links micro- and macro-variables?	*Yes.* Barriers may be macro level, e.g., social norms; attractions may be micro level, e.g., interaction.	*No.* Focuses on interaction between spouses but ignores broader context of marriage.	*Somewhat.* Focuses on links between childhood socialization and adult relationships.	*Yes.* Links external life events to adaptation within marriage.
Specifies mechanisms for change?	*No.* Acknowledges that couples may change over time but offers no speculation about how this occurs.	*Yes.* Each interaction affects global evaluations of the marriage, which then influence subsequent interactions.	*No.* Acknowledges that relationship needs may change but does not explain how this occurs.	*Somewhat.* Acknowledges that resources and adaptation change over time in response to life events.
Accounts for within- and between-couple variation in outcome?	*Somewhat.* Does not address within-couple variation but addresses how some couples may be unhappy but stable whereas others may be happy but unstable.	*Somewhat.* Accounts for within-couple variation in one direction only. Does not address differences in marital duration between couples.	*No.* Does not address how styles may change over time or why different couples with the same styles may be more or less successful.	*Yes.* Couples with inadequate coping resources will dissolve when crises occur but may endure until then.
Theoretical sources	Levinger, 1965; Lewis & Spanier, 1979; Nye & Berardo, 1973	Gottman, 1979; Jacobson & Margolin, 1979; Margolin, 1983	Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969; Shaver, Hazan, & Bradshaw, 1988	Burr, 1982; Hill, 1949; McCubbin & Patterson, 1982
Empirical examples	Albrecht & Kunz, 1980; Kitson, Holmes, & Sussman, 1983; Rusbult, 1983	Bradbury & Fincham, 1992; Markman, 1981; Wills, Weiss, & Patterson, 1974	Veroff, Sutherland, Chadiha, & Ortega, 1993; Wamboldt & Reiss, 1989	Gotlib & Hooley, 1988; Lavee, McCubbin, & Olson, 1987; Menaghan, 1982

understanding of these developments is necessary for a full understanding of the theories we reviewed.

A summary of the main ideas of this section appears in Table 1. As this table shows, although each of the four theories draws attention to distinct and potentially important aspects of marriage, no single framework satisfies all the criteria of a theory of marital development. Social exchange explains the distinction between marital satisfaction and marital stability but does not account for variation over time. Behavioral theory addresses the intricacies and implications of marital interaction but fails to link interaction to the broader context of marriage. Attachment theory relates marriage to the individual histories of spouses but does not explain the development of a marriage once two people come together. Finally, crisis theory relates marriages to external circumstances of the couple but does not provide mechanisms of change over time. To understand the full course of marital development, it may be profitable to combine the strengths of these theories in a single framework. Before considering a form the framework might take, we first turn to longitudinal studies of marriage themselves with the goal of identifying the established findings for which a developmental model of marriage must account.

Review of Longitudinal Research on Marital Outcomes

What has longitudinal research revealed about how marriages develop and change? In this section, the 115 studies that predict marital outcomes over time are examined to assess the extent to which longitudinal research on marriage has advanced an understanding of marital development. To assemble these articles, a computer search of the Psychological Literature (PsycLIT) database was conducted using combinations of the key words *marriage, marital, divorce, development, transition, prediction,* and *longitudinal*. The reference lists of all located articles, as well as the reference lists of numerous review articles and book chapters, were also searched. Articles were included in the sample if they collected data relevant to marriage at more than one point in time, and if data from one point in time were used to account for marital outcomes at a later point. Included within the pool of studies, therefore, is research that, although not directly concerned with marriage, reports findings relevant to marriage in the context of broader longitudinal investigations.

The studies are discussed in two sections. First, because the quality and appropriateness of the methods used in longitudinal research necessarily qualify interpretations of the substantive findings, the methods that have been used to study marriage longitudinally are described and evaluated. Second, the findings themselves are summarized.

Methodological Issues in Longitudinal Research on Marriage

The purpose of this section is to describe the methods that have been used to study marriage longitudinally and to evaluate the appropriateness of those methods for investigating how marriages change. Note that many of the studies reviewed were not designed to study marital change, and thus should not be faulted for using methods imperfectly suited to this goal. Methodological characteristics of the 115 published longitudinal studies on marriage are summarized in Table 2; each column of Table 2 will be discussed in turn.

Sample characteristics at Time 1. The 115 studies reported

in Table 2 do not represent 115 independent samples. Some data sets have been analyzed in several different studies, whereas in other cases researchers have published follow-up analyses of samples examined in previous reports. Although it is not always clear when a published study represents a reanalysis of previously examined data, we estimate that 68 independent samples are represented in Table 2.

Taken as a group, the 68 independent samples demonstrate relatively little variability in ethnic and demographic makeup. Of the 68 samples, 8% specifically draw from Black and White populations and an additional 17% are nationally representative of married people. The remaining 75% of the samples are comprised primarily of middle-class Caucasians (this describes all samples in Table 2 unless otherwise noted in the second column). Thus, much of what is known about predicting marital outcomes derives from one particular segment of society and may not hold true outside that group. It bears noting that demographic variables have been the most frequently replicated predictors of marital outcome. In light of the demographic homogeneity of many of the samples, it is important to be cautious about generalizing findings beyond the specific groups examined.

Despite this homogeneity, sources of variability that do exist within these samples have been often overlooked. Many of the studies in Table 2 fail to control for or address possible confounding variables that involve sample characteristics. For example, of the 115 studies, 57 studies (50%) do not distinguish between first-married and remarried couples, despite evidence that these marriages differ in a number of ways (e.g., Kurdek, 1991a). Fifty-seven studies (50%) do not distinguish between childless couples and parents, despite evidence that marriages change through the transition to parenthood (e.g., Belsky, 1985; Belsky & Pensky, 1988). Thirty studies (26%) fail to analyze data from husbands and wives separately, despite abundant evidence that effects for husbands and wives are rarely identical. Studies that pool data across these different types of individuals without controlling for these differences may be masking important effects.

Marital duration is another variable that has been overlooked often in this literature. Although several studies have found that certain variables, such as wife's education and age at marriage, affect new marriages differently than established marriages (e.g., Booth, Johnson, White, & Edwards, 1986; Johnson, Amoloza, & Booth, 1992; Morgan & Rindfuss, 1985; South & Spitze, 1986), in general longitudinal research on marriage has been inconsistent in acknowledging the importance of marital duration. Of the 115 studies in Table 2, 49 studies (43%) examine marriages that vary widely in duration without controlling for this variable. To address this problem, some researchers have begun collecting samples of newlywed couples, for whom the duration of marriage is relatively uniform; newlyweds comprise 33% of the 68 independent samples.

Data from both spouses of a couple are available in 57% of the 68 samples. The remaining 43% include data from only one spouse. This type of data necessarily limits the questions researchers can address. Although data from married individuals are acceptable for examining *intra*personal perceptions of marriage, data from both spouses are necessary for investigating *inter*personal aspects of marriage (e.g., Corsini, 1956; see Sears, 1951).

The generalizability of the 115 studies is limited further by the procedures used to recruit participants. Only 18% of the 68 samples were recruited through nationally representative random sampling. On the other hand, 23% of the samples were recruited not for studies of marriage but for life-span studies in which individuals were followed from birth or childhood onward. Another 22% of the samples were recruited through newspaper advertisements, and 12% were recruited through letters mailed to couples filing for marriage licenses. Of the 115 studies, 32 studies (28%) were conducted on unusual samples or samples of convenience (e.g., friends of students and retired persons). The effects of different recruitment methods on the nature of the resulting samples have only begun to be explored (e.g., Karney et al., in press; see Kitson et al., 1982); but because national random sampling is rare, the possibility remains that much of the longitudinal research on marriage involves idiosyncratic samples. To the extent that different recruitment methods do affect results and national random sampling is not possible, recruitment through marriage licenses may be the best current alternative because its initial population is married couples—the population of interest—rather than the readership of a particular newspaper or students in a particular course.

Sample size. The final sample sizes reported in Table 2 represent the number of individuals or couples participating in the first wave of data collection who were also included in the last wave reported for a particular study. In studies with more than two waves of data collection, this number refers to the participants included in the longest longitudinal analysis.

Initial sample sizes range from 16 to 5,083 in the 115 studies, but most analyzed samples tend to be relatively small. Specifically, of the 112 studies reporting final sample sizes, 33% have 100 participants or less, 20% have between 100 and 200 participants, 16% have between 200 and 500 participants, and 30% have more than 500 participants. Across studies, sample size tends to be related to the variables examined and methods used, in that demographic variables and self-report measures are more likely to be examined in larger samples, whereas behavioral variables and observational measures are more likely to be examined in smaller samples.

Lack of statistical power may be a problem for many of these studies, particularly those with fewer than 100 participants. For example, to have a 70% chance of detecting a "small" effect at a probability level of .05, a zero-order correlation requires a sample size of at least 600 participants (Cohen, 1977). To detect a "medium" effect under these conditions, a sample size of at least 67 participants is required. The number of studies failing to reach these sample sizes raises the possibility that there may be many more predictors of marital outcome than marital research has the power to detect and that some of the obtained predictors may be spurious. The likelihood of the Type I and Type II errors underscores the importance of replicating findings that are obtained even with relatively large samples.

Seventy-eight studies provide data on subject attrition. Among these studies, an average of 31% of each initial sample is not included in final longitudinal analyses. Most studies tend to fall on the low end of this distribution, with 49% of the studies having less than 25% attrition, 33% of the studies having 25% to

(*text continues on page 16*)

Table 2
Longitudinal Studies of Marriage

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Adams (1946)	Students recruited at college and through invitation	—	100	—	Background Personality Attitudes	SR SR SR	$MS_{TER, B\&C}$	2/variable	COR	1, 2, 3, 4, 6, 7, 10, 12, 15, 16
Ard (1977)	Engaged couples	300	161	46	Sex behaviors and attitudes	SR	—	2/20 yrs	—	4, 12, 16
Aube & Koestner (1992)	Grade-school children, recruited from schools	156	55	65	Self-esteem Femininity	SR SR	MS_{CR}	2/19 yrs	COR	3, 5, 6, 7
Axinn & Thornton (1992)	18-year-olds, randomly selected at birth	1,057	777	27	Parents' divorce Marital attitudes	SR SR	Divorce attitudes	2/5 yrs	CTH	2, 10
Bahr (1979)	Married women, age 30–44, Blacks and Whites, NRS	5,083	4,322	15	Demographics Receiving welfare	SR SR	STAB	5/7 yrs	TT	5, 6, 16
Beach & O'Leary (1993)	First-time premarital couples, recruited through media	393	264	33	Depression	SR	MS_{MAT}	3/1.5 yrs	ANOVA MR	16
Benson-von der Ohe (1987)	NWD couples, recruited through licenses	159	71	55	Background Demographics Personality	SR SR SR	$MS_{O\&B}$ STAB	3/3.5 yrs	BGC	1, 3, 10, 12, 14, 16
Bentler & Newcomb (1978)	NWD couples, age 18–60, recruited through licenses	162	77	52	Background Demographics Personality	SR SR SR	MS_{MAT} STAB	2/4 yrs	COR MR	1, 3, 5, 6, 16
Bifulco, Brown, & Adler (1991)	Married mothers, age 18–50, from community, Blacks and Whites	395	286	28	Experience of child abuse	SR	STAB	3/2 yrs	TT	1, 5, 7, 12, 16
Block, Block, & Morrison (1981)	Married parents, from community	100	57	43	Child rearing attitudes	SR	STAB	2/10 yrs	TT	1, 2, 5, 7, 16
Booth & Amato (1991)	Married individuals, randomly sampled, NRS	2,033	1,341	34	Demographics Marital attitudes Stress	SR SR SR	STAB	3/8 yrs	MR	5, 6, 7, 8, 10
Booth & Johnson (1994)	Married individuals, randomly sampled, NRS	2,033	1,298	36	Health	SR	$MS_{11\ items}$	2/3 yrs	MR	4, 5, 6, 7, 8, 10
Booth, Johnson, White, & Edwards (1985)	Married individuals, randomly sampled, NRS	2,033	1,663	18	Marital attitudes Financial assets Years married	SR SR SR	$MS_{11\ items}$ STAB	2/3 yrs	DFA ANOVA	5, 6, 7, 8, 10, 11, 13, 15
Booth, Johnson, White, & Edwards (1986)	Married individuals, randomly sampled, NRS	2,033	1,741	14	Demographics Marital attitudes Financial assets	SR SR SR	$MS_{11\ items}$ STAB	2/3 yrs	MR	5, 6, 8, 10, 13, 14
Bradbury, Campbell, & Fincham (1995, Study 1)	Married couples, recruited through media and clinic	40	32	20	Sex role Conflict behavior	SR OB	MS_{MAT}	2/1 yr	MR	1, 4, 5, 6, 7, 13
Bradbury, Campbell, & Fincham (1995, Study 2)	Married couples, recruited through media	130	105	19	Sex role Self-esteem	SR SR	MS_{MAT}	2/1 yr	MR	1, 5, 6, 7
Buehlman, Gottman, & Katz (1992)	Married parents, recruited through media	56	52	7	Oral history Conflict behavior	OB OB	MS_{MAT} STAB	2/3 yrs	COR	1, 5, 15
Burgess & Wallin (1953)	Engaged couples, from community	1,000	666	33	Family of origin Demographics Sexual attitudes Neuroticism	SR SR SR SR	$MS_{B\&W}$	2/3–5 yrs	COR	1, 2, 4, 6, 10, 14, 15, 16

Table 2 (*continued*)

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Byrne, Fears, et al. (1989)	Survivors of childhood cancer, recruited from hospital registries	—	5,308	—	Experience of childhood cancer	AC	STAB Duration	2/variable	PHA	6
Caspi, Bem, & Elder (1989)	Every third birth in Berkeley in 1928	214	182	15	Ill-temper Shyness Dependence	CR CR CR	STAB	5/40 yrs	TT	7, 13
Caspi, Elder, & Bem (1987)	Every third birth in Berkeley in 1928	214	182	15	Ill-temper	CR	STAB	3/40 yrs	OR	7, 13
Caspi, Elder, & Bem (1988)	Every third birth in Berkeley in 1928	214	182	15	Shyness	CR	STAB	4/40 yrs	COR, TT MR	7, 13
Caspi & Herbener (1990)	Married individuals	—	126	—	Personality homogamy	CR	$MS_{4\ items}$	2/11 yrs	COR	4, 10
Cherlin (1979)	Married women, age 30–44, randomly sampled	2,336	2,126	9	Demographics Employment	SR SR	STAB	3/4 yrs	MR	
Constantine & Bahr (1981)	Married men, age 18–24 randomly sampled, NRS	1,332	892	33	Locus of control	SR	STAB	7/7 yrs	ANCOVA	5, 6, 7, 11, 16
Craddock (1980)	Engaged couples, from community	—	43	—	Role expectations	SR	Value consensus	2/2 yrs	TT	1, 2, 10, 13
Crohan (1992)	First-time NWD couples, recruited through licenses, Blacks and Whites	373	282	24	Conflict beliefs	SR	$MS_{6\ items}$	2/2 yrs	COR ANOVA	4, 6, 10, 11, 13
de Lissovoy (1973)	First-time NWD couples recruited from rural high schools	48	37	23	Adjustment	SR	$MS_{7\ items}$	2/3 yrs	TT	2, 4, 10, 14, 15
Dentler & Pineo (1960)	Married couples, from community	1,000	397	60	Sexual adjustment	SR	$MS_{B\&W}$	2/10 yrs	CT	2, 3, 4, 6, 12, 13, 14, 16
Doherty (1983)	First-time married women, age 30–44, NRS	—	1,814	—	Locus of control	SR	STAB	5/8 yrs	TT	6, 7
Doherty, Su, & Needle (1989)	First-time married parents, recruited through HMOs	402	392	3	Income Mental health Self-esteem	SR SR SR	STAB	4/5 yrs	MANOVA	5, 6, 7, 12
Draper (1981)	Married women, age 30–44, randomly sampled, NRS	—	3,690	—	Receiving welfare	SR	STAB	5/7 yrs	CLC	5, 6, 7
Elder (1986)	Every third male birth in Berkeley in 1928	214	182	15	Military service	SR	STAB	5/40 yrs	BGC	7
Elder & Caspi (1988)	Married mothers, from community	—	—	—	Economic stress	SR	$MS_{1\ item}$ STAB	4/11 yrs	COR TT	5, 6, 7, 8, 10, 13, 15
Filsinger & Thoma (1988)	First-time premarital couples, recruited through media	31	21	32	Conflict behavior	OB	MS_{DAS} STAB	5/5 yrs	COR ANOVA	1, 2, 3, 13, 15
Fincham & Bradbury (1987b)	Married couples, recruited through media and clinic	37	34	8	Attributions Beliefs	SR SR	MS_{MAT}	2/1 yr	MR	2, 4, 5, 6, 7
Fincham & Bradbury (1993)	Married couples, recruited through media	130	106	18	Attributions Depression Self-esteem	SR SR SR	MS_{MAT}	2/1 yr	MR	4, 5, 6, 7
Fowers & Olson (1986)	Engaged couples, selected by clergy	—	164	—	Attitude homogamy	SR	MS_{ENR} STAB	2/2–3 yrs	ANOVA	1, 2, 8, 13, 15
Furstenburg (1976)	Adolescent girls, mostly Black, recruited through health clinics	673	544	19	Premarital pregnancy	SR	STAB Duration	2/5 yrs	LT	

(*table continues*)

Table 2 (*continued*)

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Galligan & Bahr (1978)	Married women, age 14–24, randomly sampled, Blacks and Whites	1,473	1,349	8	Demographics Financial assets	SR SR	STAB	5/5 yrs	MR	6, 7, 13
Gottman (1993a)	Married couples recruited through media	79	70	11	Conflict behavior	OB	$MS_{1\ item}$ STAB	2/4 yrs	CHI	1, 2, 5, 6, 7, 8, 10, 13
Gottman & Krokoff (1989)	Married couples, from community	55	43	22	Conflict behavior	OB	MS_{MAT}	2/3 yrs	COR	1, 2, 4, 5, 6, 7, 14, 15
Gottman & Levenson (1992)	Married couples, recruited through media	79	70	11	Conflict behavior	OB PHY	MS_{MAT} STAB	2/4 yrs	COR, SEM ANOVA	1, 2, 5, 6, 7, 8, 13
Greenstein (1990)	First-time married women, age 14–24, NRS, randomly sampled	—	1,798	—	Wife employment	SR	STAB Duration	11/15 yrs	PHA SUR	
Hannan, Tuma, & Groeneveld (1977)	Married women, low SES, randomly sampled, Blacks and Whites	—	2,904	—	Demographics Level of public assistance	SR RA	STAB	4/1.5 yrs	LRM	13
Hatchett, Veroff, & Douvan (in press)	First-time NWD couples, recruited through licenses, Blacks and Whites	373	332	11	Family of origin Attitudes Life events	SR SR SR	$MS_{11\ items}$	3/2 yrs	MR	1, 9, 10, 15
Heavey, Layne, & Christensen (1993)	Married couples, parents, from community	29	19	34	Perceptions of conflict Conflict behavior	SR OB	MS_{DAS}	2/1 yr	COR	1, 5, 7, 15
Holahan (1984)	Gifted individuals and their spouses	H: 71 W: 73	48 54	32 26	Passage of time	SR	MS_{TER}	2/41 yrs	TT	2, 5, 6
Holman, Larson, & Harmer (1994)	First-time engaged couples, recruited through churches and school, mostly Mormon	109	103	6	Attitudes Background	SR SR	MS_{MCL}	2/1 yr	COR	1, 2, 10, 13, 15
Huston & Chorost (1994)	First-time NWD couples, recruited through licenses	168	105	37	Behavior at home	SR	MS_{MOQ}	3/2 yrs	MR	4, 6, 16
Huston, McHale, & Crouter (1986)	First-time NWD couples, recruited through licenses	168	100	40	Behavior at home	SR	MS_{SMD}	2/1 yr	COR MANOVA	4, 15, 16
Huston & Vangelisti (1991)	First-time NWD couples, recruited through licenses	168	106	37	Behavior at home	SR	MS_{MOQ}	3/2 yrs	MR	4, 6, 16
Johnson, Amoloza, & Booth (1992)	Married individuals, randomly sampled, NRS	2,034	1,043	49	Passage of time	SR	$MS_{5\ items}$	3/8 yrs	SEM	4, 6
Johnson & Booth (1990)	Married individuals, farmers, randomly sampled	—	157	—	Stress Demographics	SR SR	$MS_{3\ items}$	2/5 yrs	SEM	1, 2, 4, 5, 6, 7, 8, 10
Julien, Markman, & Lindahl (1989)	First-time engaged couples, recruited through media	135	59	56	Conflict behavior	OB	MS_{MAT}	4/4 yrs	COR	1, 3, 4, 10, 15
Katz & Gottman (1993)	Couples with children, recruited through media	56	53	5	Interaction	OB	MS_{MAT}	2/3 yrs	COR	1, 5, 7, 15
C. Kelly, Huston, & Cate (1985)	NWD couples, recruited through licenses	50	21	58	Courtship history Perceptions of courtship	SR SR	$MS_{DAS,B\&K}$	2/2 yrs	COR	3, 4, 5, 6, 15
E. L. Kelly (1939)	Engaged couples	—	82	—	Background	SR	MS_{TER}	2/2 yrs	COR	1, 4, 5, 6, 15
E. L. Kelly & Conley (1987)	Engaged couples, age 20–30, recruited through media	300	249	17	Background Personality	SR PR	$MS_{1\ item}$	3/45 yrs	TT, COR DFA MR	1, 5, 10

Table 2 (*continued*)

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Krokoff (1990)	Married couples, from community	52	36	30	Conflict behavior	OB	MS_{MAT}	2/3 yrs	COR	1, 4, 5, 6, 7
Kuh & Maclean (1990)	Newborn girls, randomly sampled, NRS	2,548	1,669	34	Parents' divorce	SR	STAB	—/36 yrs	ANOVA	7
Kurdek (1991a)	NWD couples, recruited through licenses	538	353	34	Demographics Relationship values Personality	SR SR SR	MS_{DAS} STAB	2/1 yr	ANOVA MR	8, 11
Kurdek (1991b)	NWD couples, recruited through licenses	538	310	42	Demographics Relationship values Personality	SR SR SR	MS_{DAS}	3/2 yrs	COR MR	4, 5, 11
Kurdek (1993)	NWD couples, recruited through licenses	538	286	47	Demographics Relationship values Personality	SR SR SR	STAB	5/4 yrs	ANOVA MR	3, 5
Larsen & Olson (1989)	Engaged couples, selected by clergy	1,204	178	85	Attitude homogamy	SR	MS_{ENR}	2/2 yrs	ANOVA	1, 2, 3, 8, 13, 15
Levenson & Gottman (1985)	Married couples, recruited through media	30	19	37	Conflict behavior	OB PHY	MS_{MAT}	2/3 yrs	COR	1, 3, 4, 5, 6, 7, 8, 14, 15
Liker & Elder (1983)	Married parents, randomly sampled	—	111	—	Personality Economic stress	CR SR	MS_{CR}	3/11 yrs	COR SEM	7, 8
Loeb (1966)	College students	—	44	—	Personality	SR	STAB	2/14 yrs	TT	1, 2, 5, 6, 7
Markman (1979)	Engaged couples, recruited in college and through media	26	14	46	Conflict behavior	SR	MS_{MRI}	3/2.5 yrs	COR MANOVA	3, 4, 6, 8, 11, 13, 15, 16
Markman (1981)	Engaged couples, recruited in college and through media	26	9	65	Conflict behavior	SR	MS_{MRI}	4/5.5 yrs	COR	3, 4, 6, 8, 13, 15, 16
Markman, Duncan, Storaasli, & Howes (1987)	First-time engaged couples, recruited through media	135	125	7	Conflict behavior Relationship attitudes	SR SR	MS_{MAT}	4/3 yrs	COR	4, 6, 8, 10, 15
McCord (1983)	Grade-school boys, from community	253	248	2	Experience of child abuse	CR	STAB	2/30 yrs	ANOVA	5, 7, 13
McCranie & Kahan (1986)	Male medical school students	614	431	30	Personality	SR	STAB	2/25 yrs	CHI MANOVA	1, 7
McGonagle, Kessler, & Gotlib (1993)	Married couples, non-Black, randomly sampled	—	691	42	Conflict behavior	SR	STAB	2/3 yrs	MR	1, 5, 6, 8, 10
McGue & Lykken (1992)	Identical and fraternal twins	—	1,516	—	Twin status	SR	STAB	2/40 yrs	COR OR	
Menaghan (1983)	Married individuals, randomly sampled	—	639	—	Demographics Life transitions Coping adequacy	SR SR SR	$MS_{10\ items}$	2/4 yrs	MR	4, 5, 7, 8
Menaghan (1985)	Married individuals, randomly sampled	—	790	—	Demographics Economic stress Depression	SR SR SR	STAB	2/4 yrs	TT CHI	5, 7, 8
Mott & Moore (1979)	Married women, age 14–24, Blacks and Whites, NRS	—	2,622	—	Demographics Background	SR SR	STAB	6/5 yrs	MR	5, 15

(*table continues*)

Table 2 (*continued*)

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Newcomb (1986)	High school students	—	178	—	Cohabitation Personality Attitudes	SR SR SR	STAB	2/5 yrs	COR CHI	6
Newcomb & Bentler (1980)	NWD couples, age 18–60, recruited through licenses	162	77	52	Demographics Cohabitation	SR SR	MS_{MAT} STAB	2/4 yrs	COR, CHI ANOVA,	1, 3, 5, 6, 8, 9, 16
Noller, Feeney, Bonnell, & Callan (1994)	Engaged couples, recruited through media and churches	43	33	23	Conflict behavior	SR OB	MS_{QMI}	3/2 yrs	COR, MR, MANOVA	2, 4, 5, 6, 10, 13, 16
Orbuch, Veroff, & Holmberg (1993)	First-time NWD couples, recruited through licenses, Blacks and Whites	373	264	29	Oral history	SR OB	$MS_{6\ items}$	2/2 yrs	ANCOVA	4, 6, 11, 15
Pavalko & Elder (1990)	Gifted male children, from community	—	624	—	Military service	SR	STAB	6/33 yrs	MR	2
Philliber & Hiller (1983)	Married women, age 30–44, randomly sampled	—	984	—	Employment	SR	STAB	2/7 yrs	LPM	5, 6, 7
Pineo (1961)	Engaged couples, from community	1,000	400	60	Marital attitudes Passage of time	SR SR	$MS_{B\&W}$	2/15 yrs	TT	2, 3, 6, 15
Rank (1987)	Married couples on welfare	—	1,392	—	Receiving welfare	AC	STAB	7/4 yrs	LT MR	5, 7, 8
Rockwell, Elder, & Ross (1979)	Adolescent women, from community	—	83	—	Personality Timing of marriage	CR SR	STAB	—	MANOVA	
Schaefer & Burnett (1987)	Married mothers, recruited through clinics, Blacks and Whites	—	51	—	Depression Relationship attitudes	SR SR	MS_{ARI}	2/3 yrs	CLC MR	4, 5, 7
Schaninger & Buss (1986)	First-time NWD couples	311	104	64	Consumption patterns	SR	$MS_{1\ item}$ STAB	17/11yrs	CHI MANOVA	1, 2, 3, 6, 8, 9, 10, 12, 13, 15, 16
Sears (1977)	Gifted male children, from community	857	486	43	Background Personality	SR CR	STAB	4/50 yrs	COR	2
Skolnick (1981)	Adolescent children, from community	—	232	—	Demographics Personality	SR CR	$MS_{4\ items,\ CR}$ STAB	—/40 yrs	COR, MR, ANOVA	5, 6, 7, 10, 12, 13, 15, 16
Smith, Vivian, & O'Leary (1990)	First-time engaged couples	91	72	21	Conflict behavior	OB	MS_{MAT}	4/2.5 yrs	MR	1, 4, 8
South & Spitze (1986)	First-time married women, randomly sampled	—	—	—	Demographics Employment	SR SR	STAB	4/9 yrs	MR	13
Steinberg & Silverberg (1987)	Married parents, from community	157	129	18	Self-esteem Parent–child relationship	SR SR	MS_{SMD}	2/1 yr	MR	4, 5
Storaasli & Markman (1990)	Engaged couples	131	40	70	Problem ratings	SR	MS_{MAT}	6/5 yrs	COR MANOVA	3, 4, 5, 12, 13, 16
Suitor & Pillemer (1994)	Wives caring for an elderly parent	117	94	20	Spousal support	SR	MS_{DAS}	2/1 yr	MR	2, 5, 7, 10
Surra, Arizzi, & Asmussen (1988)	First-time married couples, predominantly Mormons, recruited through licenses	41	17	59	Reasons for commitment	SR OB	MS_{DAS}	2/3 yrs	TT	1, 2, 3, 6, 8, 13, 15
Teachman & Polonko (1990)	High school seniors, NRS	—	8,191	—	Demographics Cohabitation	SR SR	STAB	6/14 yrs	LT MR	
Terman (1948)	Gifted individuals and their spouses	—	643	—	Background Personality	SR SR	STAB	2/7 yrs	TT	1, 2, 5, 6, 7, 10, 15
Terman (1950)	Gifted individuals and their spouses	—	643	—	Background Personality	SR SR	STAB	2/8 yrs	TT	1, 2, 5, 6, 7, 10, 15

Table 2 (*continued*)

Study	Sample characteristics at Time 1[a]	Sample size: Initial	Sample size: Final	Attrition (%)	Independent variables	Measurement[b]	Dependent variables[c]	No. of assessments/ total duration	Method of analysis[d]	Comments[e]
Terman & Wallin (1949)	Gifted individuals and their spouses	—	643	—	Background Personality	SR SR	STAB	2/8 yrs	COR	1, 2, 5, 6, 7, 10, 15
Thornton (1985)	Married mothers, randomly sampled	1,057	898	15	Demographics Marital attitudes	SR SR	STAB	6/18 yrs	SEM	5, 7, 10
Thornton (1991)	Random sample of births	—	858	—	Family of origin	SR	STAB	7/23 yrs	CTH MR	
Tzeng (1992)	First-married individuals, randomly sampled, NRS	—	—	—	Demographics Homogamy	SR SR	STAB	9/9 yrs	DTH	8, 13
Udry (1967)	Engaged couples, recruited at college and through invitation	150	142	5	Personality Perceptions of mate	SR SR	STAB	2/3 yrs	DFA	1, 2, 10
Udry (1981)	Married couples, randomly sampled, NRS	—	375	—	Demographics Perceptions of alternatives	SR SR	STAB	3/2 yrs	CHI MR	1, 5, 7
Ulrich-Jakubowski, Russell, & O'Hara (1988)	Retired married men	101	78	23	Depression	SR	MS_{DAS}	2/1 yr	SEM	2
G. E. Vaillant (1978)	Men, age 18–20, recruited at Harvard	102	95	7	Background	SR	MS_{CR} STAB	3/25 yrs	ANOVA	2, 5, 7, 9, 13, 15
C. O. Vaillant & Vaillant (1993)	Married men, recruited at Harvard, and their wives	268	51	81	Passage of time	SR	MS_{GSM}	3/40 yrs	ANOVA	2, 3, 5, 6
Van Yperen & Buunk (1990)	Married couples, recruited through media	259	171	34	Perceptions of equity	SR	$MS_{8\ items}$	2/1 yr	ANOVA	7
Veroff, Sutherland, Chadiha, & Ortega (1993)	First-time NWD couples, recruited through licenses, Blacks and Whites	373	264	29	Background Oral history	SR OB	$MS_{5\ items}$	2/2 yrs	MR	1, 4, 6
Wamboldt & Reiss (1989)	Engaged couples, recruited through media	16	14	13	Demographics Family of origin	SR SR	MS_{DAS}	2/1 yr	COR	1, 4, 6, 15
R. E. L. Watson & DeMeo (1987)	NWD couples, recruited through media	186	93	50	Premarital cohabitation	SR	MS_{DAS}	2/3 yrs	ANOVA	3, 5, 6
L. K. White & Keith (1990)	Married individuals, randomly sampled, NRS	2,033	1,668	18	Demographics Employment	SR SR	$MS_{6\ scale}$ STAB	2/4 yrs	MR	5, 6, 7, 8
Zuo (1992)	Married individuals, randomly sampled, NRS	2,034	1,278	37	Frequency of interaction	SR	$MS_{5\ items}$	3/8 yrs	SEM	4, 5

Note. Dashes indicate information that was unavailable or not reported.

[a] NRS = nationally representative sample; NWD = newlywed; HMO = health maintenance organization; SES = socioeconomic status.

[b] AC = archival data; CR = clinical rating; OB = observational coding; PHY = physiological measures; PR = peer rating; RA = random assignment; SR = self-report.

[c] The subscript refers to the measures used to assess marital satisfaction. When unpublished measures were used, the number of items in the measure is reported. ARI = Autonomy and Relatedness Inventory (Schaefer & Edgerton, 1979); B&C = Burgess & Cottrell (1939) Marital Adjustment Scale; B&K = Braiker & Kelley (1979) Relationship Questionnaire; B&W = Burgess & Wallin (1953) Marital Adjustment Scale; CR = clinical rating; DAS = Dyadic Adjustment Scale (Spanier, 1976); ENR = ENRICH (Olson, Fournier, & Druckman, 1986); GSM = Grant Study Marital Adjustment Scale (G. E. Vaillant, 1977); MAT = Marital Adjustment Test (Locke & Wallace, 1959); MCL = Marital Comparison Level Index (Sabatelli, 1984); MOQ = Marital Opinion Questionnaire (Campbell, Converse, & Rodgers, 1976); MRI = Marital Relationship Inventory (Locke & Williamson, 1958); MS = marital satisfaction; O&B = Orden & Bradburn (1968) Marital Adjustment Scale; QMI = Quality Marriage Index (Norton, 1983); SMD = semantic differential (Osgood, Suci, & Tannenbaum, 1957); STAB = marital stability; TER = Terman (1938) Marital Happiness Test.

[d] ANOVA = analysis of variance; ANCOVA = analysis of covariance; BGC = between-group comparison; CHI = chi-square test; CLC = cross-lagged correlation; COR = correlation; CT = contingency table; CTH = continuous time hazard model; DFA = discriminant function analysis; DTH = discrete time hazard model; LPM = linear probability model; LRM = log-linear rate model; LT = life table; MANOVA = multivariate analysis of variance; MR = multiple regression; OR = odds ratio; PHA = proportional hazard analysis; SEM = structural equation modeling; SUR = survival analysis; TT = *t* test.

[e] 1. Incomplete longitudinal design. 2. Biased or unusual sample. 3. High-attrition rate. 4. Divorced couples omitted from analyses. 5. No distinctions between first-married and remarried couples. 6. No distinctions between childless couples and parents. 7. No controls for variations in duration of marriage. 8. Husbands and wives not analyzed separately. 9. No distinction between quality and stability as criterion. 10. Unvalidated measure used. 11. No report on longitudinal stability of variables. 12. No longitudinal analyses of longitudinal data. 13. Categorized continuous data. 14. Inappropriate statistics. 15. No controls for correlations between Time 1 variables. 16. No analysis of possible attrition bias.

50% attrition, and 17% of the studies having more than 50% attrition from the initial to the final data collection. Contributing to this attrition are 36 studies that deliberately exclude divorcing couples from final analyses, omitting the couples who may have experienced the most drastic changes (Glenn, 1990). In 20 studies with substantial attrition, final samples were not analyzed for attrition biases. When possible attrition biases have been examined, participants who are younger, poorer, less educated, and from minority backgrounds were found to be less likely to be included in final longitudinal analyses. To the extent that these variables are related to poorer marital outcomes, attrition will lead to underestimates of effects (Hannan, Tuma, & Groeneveld, 1977). Selective attrition further limits the generalizability of this research because there appears to be a subset of the population that is not being represented in the samples that are analyzed longitudinally. Surprisingly, rate of attrition does not appear to be related to study duration.

Independent variables. Characteristics of the independent variables examined in longitudinal research on marriage are discussed in detail in the section *Results of Longitudinal Research on Marriage.*

Measurement. In the studies listed in Table 2, observational data were collected in 16 studies, clinical ratings were made in 9 studies, physiological measures were collected in 2 studies, archival data were used in 2 studies, peer ratings were collected in 1 study, and 1 study examined the effects of welfare on marital stability by randomly assigning couples to varying levels of financial support (Hannan et al., 1977). Eighty-nine studies (77%) gathered data solely through self-report measures. Although self-reports can be an important source of information, research has called into question the accuracy of spouses as reporters on their own relationships (e.g., Christensen & Nies, 1980; Floyd & Markman, 1983; Jacobson & Moore, 1981). Of course, this concern is greater with some variables (e.g., behaviors displayed in marital conflict) than with others (e.g., number of children). In any case, what longitudinal research has revealed about marriage is heavily dependent on the self-reported perceptions of married people.

The psychometric properties of the measures themselves appear to be adequate in most cases, although unvalidated or single-item measures were used in 30 studies (26%). Increased use of alternative methods of assessing marriage, such as ratings obtained from peers and clinicians and direct observations of couples, in conjunction with self-report data, would broaden the questions that marital researchers could address and strengthen confidence in the findings of these studies.

Dependent variables. For a complete picture of marital development, it would be optimal to examine changes in both marital quality and marital stability within the same study. For example, both outcomes would need to be assessed in the same sample to examine whether the variables that predict declines in marital satisfaction are the same as those that predict eventual divorce. Of the 115 studies, 16% examine both of these outcomes, 43% examine only marital satisfaction, and 37% examine only marital stability. Thus, satisfaction and stability have been treated as separate outcomes rather than as two aspects of a continuing process. Merely examining both of these variables within the same study would shift the focus of research more toward development.

Although marital researchers are consistent in the outcomes they have chosen to study, they have seldom agreed about how to measure those outcomes. Marital stability, for example, has been variously operationalized as the absence of divorce, the absence of separation or divorce, and the reports of intact couples that have not considered separation or divorce.[3] Similarly, 30 measures have been used to assess marital satisfaction. Although these measures are probably highly interrelated (Karney, Bradbury, Fincham, & Sullivan, 1994), they may not be equally sensitive to changes in marital quality over time (Fincham & Bradbury, 1987a; cf. Eddy, Heyman, & Weiss, 1991, and Sabourin, Lussier, Laplante, & Wright, 1990, on the variable structure of marital quality measures). In summary, the lack of consensus on how to measure marital outcomes contributes to a lack of cohesion in this literature.

Marital researchers have rarely explored outcomes other than satisfaction and stability. The duration of marriages that do dissolve, for example, is an important dimension reflecting the full course of marital change; the variables that lead a marriage to end after 3 years are probably different in important ways from those that lead a marriage to end after 15 years. As we have already noted, these marriages have been treated as identical in most analyses. Despite the potential value of a greater understanding of marital duration, and despite the availability of statistical techniques for examining duration (Singer & Willett, 1991), it has been examined only three times (Byrne et al., 1988; Furstenberg, 1979; Greenstein, 1990). Recently developed techniques for modeling individual growth raise the possibility of examining rates of change in marital satisfaction for each spouse and then investigating the variables that account for interindividual variability in those rates (Bryk & Raudenbush, 1987; Willett, 1988). The potential of these techniques is beginning to be explored (e.g., Belsky & Rovine, 1990; Kurdek, 1991a). Another variable suggested by this approach, distinct from the linear rate of change, is amount of variability in an individual's satisfaction over time. What variables account for smoothly linear changes in the satisfaction of one couple and widely varying or curvilinear changes in the satisfaction of another couple? Gottman (1993a, 1993b; Gottman & Levenson, 1992) has suggested that couples high in emotional expressiveness during interaction should demonstrate more variability in marital satisfaction over time than other stable couples, but to date no research has examined intraindividual variability in marital satisfaction directly. In general, outcomes that relate to ongoing change, as opposed to final outcome, have yet to be examined fully in longitudinal studies of marriage.

Number of assessments and total duration. Of the 115 studies, 51 studies (44%) assess marriages three times or more. However, in more than half of the studies (64, or 56%), marriages are assessed only two times. As Rogosa, Brant, and Zimowski (1982) have argued, "two waves of data contain an extremely limited amount of information about the change of each individual" (p. 729; see also Nesselroade, 1991; Nesselroade, Stigler, & Baltes, 1980). Because there are few estab-

[3] In this review, the occurrence of separation or divorce was considered an operationalization of marital stability, and reported thoughts of separation or divorce were considered operationalizations of marital satisfaction.

lished methods of analyzing multiple waves of data in a single analysis (Rutter, 1981), even those studies that have assessed couples three or more times often resort to analyzing the data "as a series of separate designs with two time points" (Bryk & Raudenbush, 1987, p. 147). The recent development of techniques for modeling individual change that take advantage of multiple waves of data may encourage researchers to move beyond two-wave designs and to analyze all waves of data simultaneously (Karney & Bradbury, 1995).

In 39 studies (34%), measures administered at Time 1 are not administered again at each subsequent data collection. This presents interpretive difficulties when investigating the effects of variables that may themselves be affected by marital satisfaction. For example, for any longitudinal relationship between a variable and marital satisfaction, the impact of that variable at Time N on marital satisfaction at Time $N + 1$ may be merely an indirect effect of the impact of the marital satisfaction at Time $N - 1$ on the variable at Time N. Incomplete longitudinal designs are unable to rule out this alternative hypothesis, leaving unclear the true importance of even those variables with demonstrated longitudinal effects (Bradbury & Karney, 1993; Gotlib & Hooley, 1988).

The durations of longitudinal studies of marriage vary widely. Twenty-four life-span studies of individuals assess marriages across 15 years or more. On the other hand, 70 of the 115 studies (61%) follow marriages for 5 years or less. Thus, in more than half of the studies a relatively narrow span in the course of a marriage is examined, and in most of the cases that span falls approximately in the middle of relatively established marriages. Whereas research that examines the full course of marriages from beginning to end may be impractical now, current studies that examine marriages from the wedding onward are a good beginning, particularly because half of all marriages that eventually end in divorce do so within the first 7 years of marriage (Cherlin, 1992).

Methods of analysis. Longitudinal effects on marital outcomes have been estimated with 18 different statistical techniques. The most frequently used technique is a zero-order correlation (37 studies), but as a method of estimating longitudinal effects this technique is limited in several ways. First, in many investigations involving marital satisfaction, predictor variables are correlated with the outcome variable cross-sectionally as well as longitudinally. Failure to control for cross-sectional correlations in estimating longitudinal effects means that the estimated effects are simple associations across time rather than predictions of change. Controlling for cross-sectional associations between predictors and outcomes more closely estimates change over time, which this research typically is designed to clarify. A second problem with correlations arises from associations among multiple predictor variables. Many studies estimate the effects of multiple independent variables on a single outcome. If the independent variables are intercorrelated, spurious effects can result. When multiple independent variables are examined in a single study, estimates of effects for each variable should instead statistically control for the effects of the other variables. This method would minimize spurious effects, illuminate relationships between predictor variables, and allow the effects of individual variables to be understood in the context of other variables. Thirty-two studies (28%) are difficult to interpret because of a failure to control for cross-sectional correlations.

The studies that use t tests (16 studies) or analysis of variance (ANOVA; 28 studies) suffer similar limitations, because these two techniques also fail to account for cross-sectional associations when estimating longitudinal effects. These techniques can have the additional problem of requiring researchers to transform continuous variables into categorical variables. For example, to estimate the effects of income on marital stability with an ANOVA, researchers might group couples into high-, medium-, and low-income groups. This practice, used in 28 studies, not only yields a distorted view of marital phenomena, which are probably not categorical in nature, but also results in costly loss of information. Multiple regression, used in 37 studies, helps to overcome some of these problems by allowing the use of continuous data and controlling for correlations between predictor variables. Structural equation modeling (SEM; Sorbom, 1981) improves on multiple regression in two ways by allowing the estimation of latent variables that are free from the potential biasing effects of measurement error and by estimating the associations between variables while simultaneously controlling for all other associations within a defined system. Although at least 30 studies have the large sample sizes and multiwave data that are potentially well suited for analysis with SEM, only 7 studies have used SEM to date. Inappropriate statistics (e.g., contingency tables and correlations with extreme groups) were used in 8 studies.

Conclusion. Even with longitudinal data, marital researchers have not always used the methods best suited to examining how marriages develop and change. Samples have been at the same time overly homogenous and underanalyzed, calling into question the generalizability of this body of research and suggesting possible confounding variables that have yet to be controlled. Nearly half of the studies lack the power to detect small effects, even though the effects in question are likely to be small in many cases. Data have been drawn almost exclusively from self-report surveys and interviews, whereas alternative means of gathering data have yet to be exploited. Although an interest in marital development suggests several possible dependent variables, the field has focused narrowly on predicting marital satisfaction and marital stability, emphasizing end states rather than how couples arrive at them. Although two waves of data are probably inadequate for making causal inferences from nonexperimental data (Rogosa et al., 1982), researchers have rarely gathered multiwave data and have underexamined multiwave data when it has been available.

In summary, the richness of marriage as a topic remains to be captured fully by the methods used to study it. To fully explore development in marriage, it is essential that multiple waves of data be collected from appropriately large samples over relatively long periods of time. Although the expense of such studies would be considerable, the alternative is to continue to conduct studies that, despite great cost and effort, are not fully capable of answering questions of central interest to this field. Because the methods of these studies influence the validity of the findings, these limitations should be kept in mind as those findings are reviewed in the next section.

Results of Longitudinal Research on Marriage

Nearly 200 variables have been examined in longitudinal research on marriage and nearly 900 different findings have been

reported, including effects of spouses' variables on their own outcomes, effects of spouses' variables on each other's outcomes, and effects of differences between spouses' variables on the couple's outcomes. How are the effects of these variables best summarized and evaluated? In this review, meta-analytic techniques were used to estimate an aggregate effect size (r) for each variable that has been examined as a predictor of marital quality or marital stability. A strength of this approach is that it allows for approximation of the magnitude and direction of the effect of each variable on the basis of the results of all studies of that variable, independent of the sample size or statistical power of any single study (Schmidt, 1992). To compute the aggregate effect sizes, a Pearson's product–moment correlation coefficient (r), representing the strength of the linear relationship between two variables, was obtained or computed for each variable in a study. Each r obtained for a given variable was converted using a Fisher's r-to-z transformation, and the mean of the zs was then calculated and transformed back into an r. In cases where the rs to be combined do not vary substantially in magnitude or direction, this is an adequate method of estimating an aggregate r (Rosenthal & Rosnow, 1984). Where the rs to be combined were not all in the same direction, that has been noted in the text.

Not all of the results from the 115 studies in Table 2 could be included in these analyses. One difficulty encountered in combining results involved the frequent reporting of beta weights or standardized beta weights from multiple regression equations in place of r. Although beta weights are estimates of the linear relationship between predictor and outcome, they are not interchangeable with r and are difficult to interpret as effect sizes in the absence of data on the standard error of the beta estimate (personal communication, R. Rosenthal, March 11, 1993). When a study reported only beta weights and their statistical significance, a value of t corresponding to the appropriate p value could be used to derive a conservative estimate of r (Rosenthal & Rosnow, 1984). Ten studies did not report enough data to estimate effect sizes; hence, those results were not included in the analyses.

The analyses also omit variables that have been examined in only a single study. Although some of the omitted variables may prove to be important in future research, if a variable has not been studied more than once to date, the theoretical justification for examining that variable may be suspect. Moreover, including variables that have been examined only once would triple the number of effects to summarize. In any case, restricting the present discussion to findings for which there have been attempts at replication encourages a focus on the most relevant variables examined by longitudinal marital research.

The aggregated findings are presented for marital stability in Figure 1 and for marital satisfaction in Figure 2. When possible, effects have been reported separately for husbands and wives, but findings are presented for couples when researchers did not distinguish between husbands and wives. In Figures 1 and 2, effect sizes are scaled so that positive effects indicate that a variable predicts greater or increased stability and satisfaction and that negative effects indicate that a variable predicts lower or decreased stability and satisfaction. The number in parentheses after each effect represents the number of effects combined to arrive at that estimate, and estimates that are based on three or more effects are in boldface.[4]

Figures 1 and 2 show that longitudinal research on marriage has demonstrated many reliable effects on marital satisfaction and marital stability. In general, positively valued variables—such as education, positive behavior, and employment—predict positive marital outcomes, whereas negatively valued variables—such as neuroticism, negative behavior, and an unhappy childhood—predict negative marital outcomes. Much of this research, therefore, appears consistent with lay theory about the variables that contribute to marital success and failure. We refer to many of these specific effects in greater detail later, when we present a model that incorporates the strengths of existing theories and that integrates the reliable research findings identified. Before turning to this task, however, we first consider several complexities that arise from the published research that are not immediately apparent from Figures 1 and 2. These areas warrant additional attention and are discussed in greater detail in the paragraphs below.

Direct versus mediated effects. Figures 1 and 2 reflect the majority of marital research in that they present direct linear associations between predictors and outcomes. It may be misleading, however, to estimate direct effects on marital outcomes in all instances. Education and parental divorce, for example, may affect marital outcomes through their effects on other variables, but mediating relationships have rarely been examined in longitudinal research on marriage. Variables such as satisfaction and behavior may demonstrate greater effects on marital stability than education and income, not because their true importance is greater but because the former variables may have direct effects, whereas the latter variables are likely to operate through unexamined mediating variables. Until the interrelationships among the variables in Figures 1 and 2 are examined more fully, conclusions about the relative importance of different classes of variables in predicting marital outcome should be made with caution.

Effects on satisfaction versus effects on stability. Variables that have been studied in relation to both marital stability and marital satisfaction tend to have effects in the same direction for both outcomes. A noteworthy exception to this trend is marital duration. Longitudinal examination of this variable reveals that marriages tend to become more stable but less satisfying with time, thus supporting the idea that marital stability and marital satisfaction, although clearly related, are not interchangeable outcomes.[5] That few other variables in Figures 1 and 2 show different effects on stability and satisfaction suggests that re-

[4] Although variables examined only once were not included in the review, some effects presented in Figures 1 and 2 are still based on only one effect. These cases represent variables that were examined in two or more studies but were examined with respect to different dependent variables in each study.

[5] Cross-sectional and retrospective research suggests that marital satisfaction follows a curvilinear pattern over the course of a marriage (e.g., Rollins & Feldman, 1970), with couples reporting that their marriages are happier in the early and late years of the relationship but less satisfying during the middle years. Longitudinal research disconfirms this hypothesis (C. O. Vaillant & Vaillant, 1993).

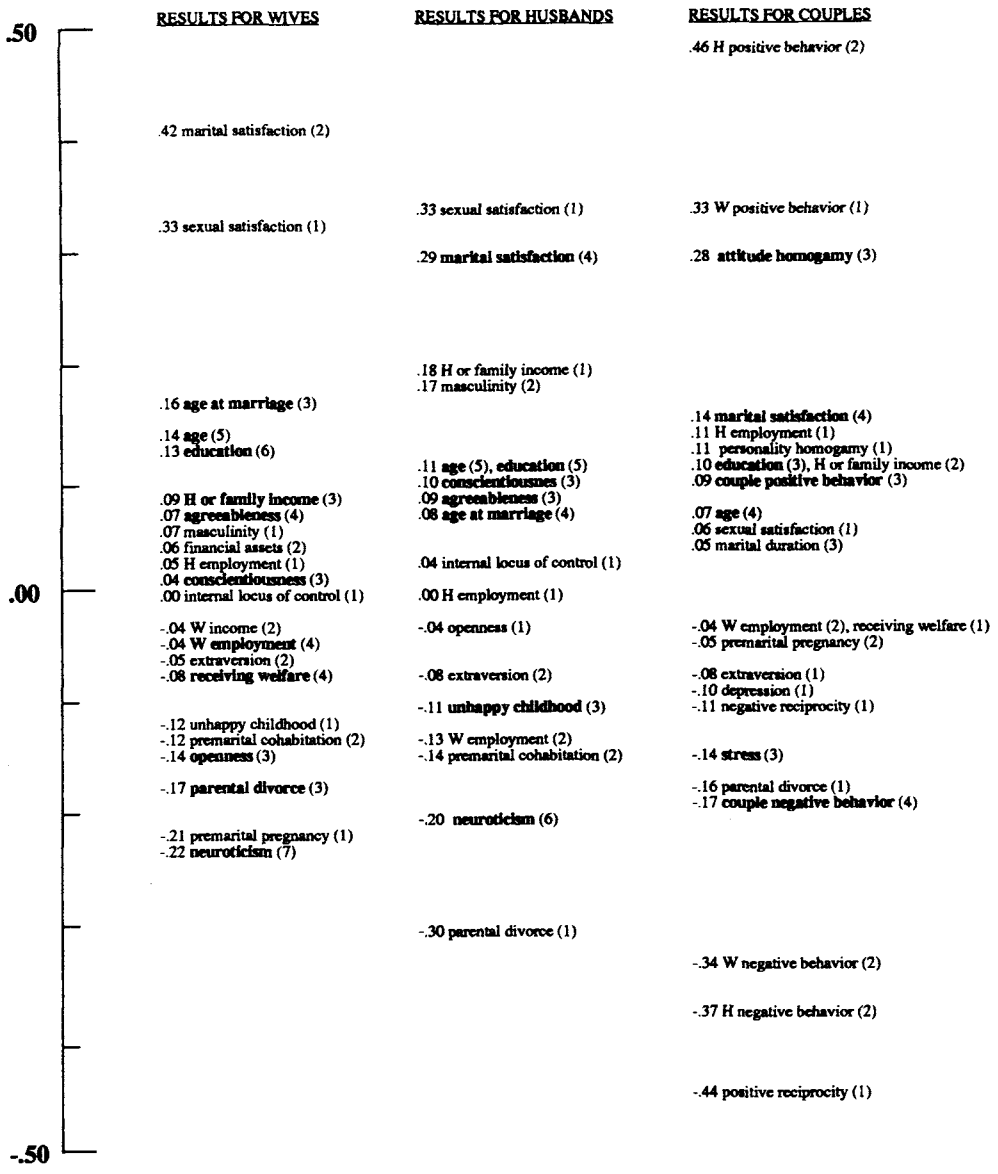

Figure 1. Aggregate effect-size *r*s of independent variables on the marital stability of wives, husbands, and couples. Numbers in parentheses represent the number of studies aggregated to estimate the effect. Entries in boldface are based on three or more studies. Variables in each column are measured for the individual or the couple. Where husbands' and wives' variables have been studied separately for their effects on each spouse has been indicated in the figure (*H* = husband, *W* = wife).

searchers have yet to address the specific ways that these outcomes are distinct.

Effects for husbands versus effects for wives. Gender differences in marriage can be demonstrated in at least two ways: A single variable can affect husbands and wives differently, or husbands' and wives' variables can affect the marriage differently. For example, husbands can be affected by their own backgrounds differently than wives are affected by their own backgrounds, or husbands' backgrounds can affect both spouses differently than wives' backgrounds affect both spouses. Although marital researchers have suggested that both kinds of gender differences exist (e.g., Baucom, Notarius, Burnett, & Haefner, 1990; Floyd & Markman, 1983), Figures 1 and 2 do not reveal substantial gender differences of either kind. With minor exceptions, the aggregate effects of variables on the wives' outcomes are in the same direction and of a similar magnitude to the aggregate effects of those variables on the husbands' outcomes. Husbands' and wives' variables tend to have similar effects on couples as well. The exceptions to this trend are income and employment, for which wives' variables and husbands' variables have opposite effects, but again each variable has the same effect on husbands and wives. That is, husbands' employment has positive effects on both spouses' marriages, and wives' employment has negative effects on both spouses'

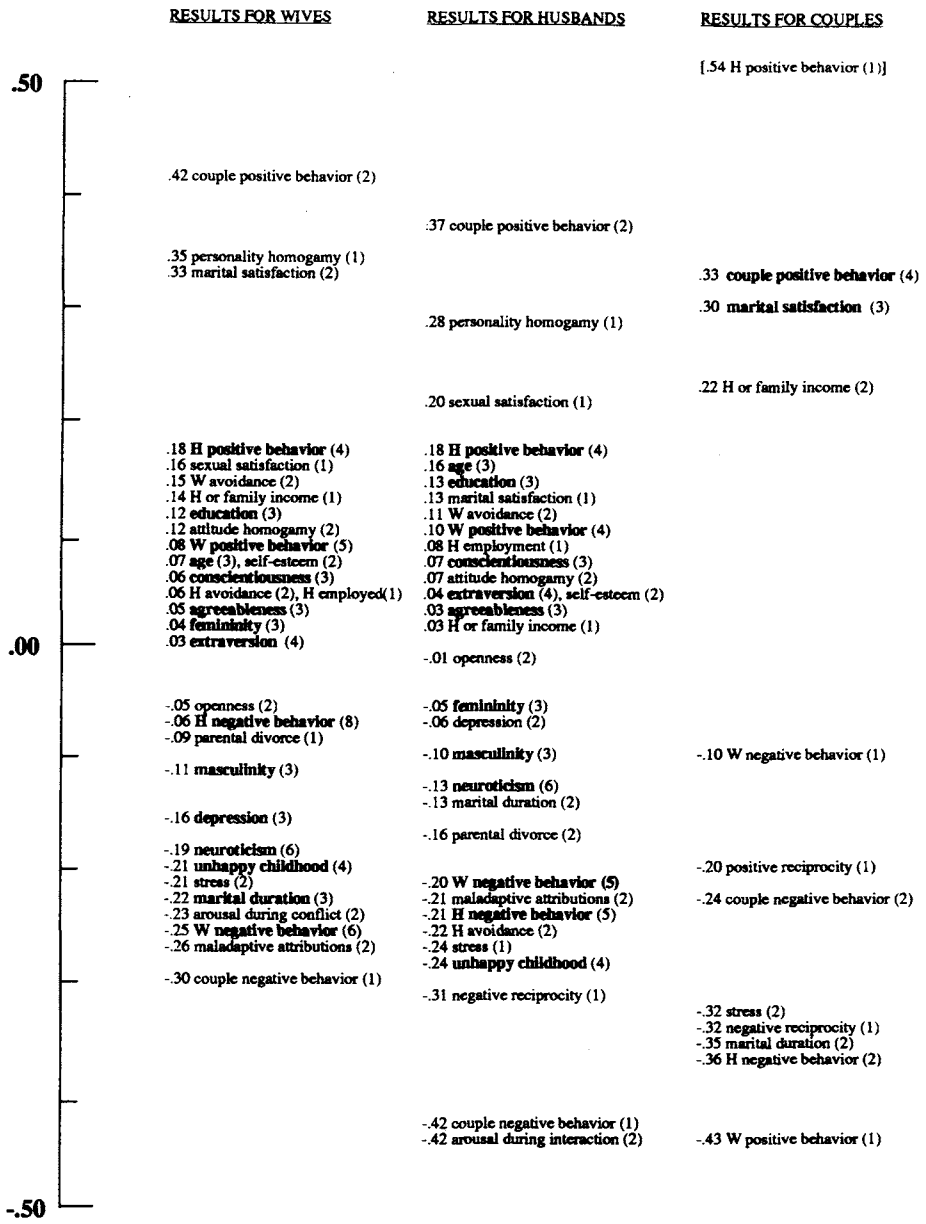

Figure 2. Aggregate effect-size *r*s of independent variables on the marital satisfaction of wives, husbands, and couples. Numbers in parentheses represent the number of studies aggregated to estimate the effect. Entries in boldface are based on three or more studies. Variables in each column are measured for the individual or the couple. Where husbands' and wives' variables have been studied separately for their effects on each spouse has been indicated in the figure (*H* = husband, *W* = wife).

marriages. Although the relative absence of gender differences may be a consequence of the insufficient power in these studies, the findings of this review suggest that gender differences in effects on marriage may have been exaggerated. The wide belief in gender differences in marriage may owe to the fact that effects for one spouse may be statistically significant whereas the other is not, despite the effects being similar in magnitude and direction. The danger of drawing unwarranted conclusions from significance tests suggests the value of reporting and analyzing effect sizes, as has been done here.

Effects of satisfaction on stability. As would be expected, marital satisfaction has larger effects on marital stability than do most other variables in Figure 1. However, this effect is not particularly large (aggregate *r*s for marital and sexual satisfaction range from .06 to .42). Thus, although there can be little doubt that an unstable marriage is marked by dissatisfaction, the experience of dissatisfaction does not strongly predict instability, indicating that knowing a couple's initial perceptions of their marriage alone is insufficient to predict their eventual stability. The amount of unexplained variance supports the social

exchange theorists' idea that decisions to divorce are affected by variables other than marital quality, but as noted earlier, longitudinal research has revealed few variables that affect marital satisfaction and marital stability differently. The relatively weak association between satisfaction and stability further underscores the need to examine these outcomes separately.

Effects of similarity. Although greater attitude and personality homogamy between spouses predicts greater marital stability and satisfaction, these results should be viewed with caution. Most studies that examine the effects of homogamy on marital outcomes do not control for initial levels of the variables in question before assessing the effects of discrepancies between spouses. A study of marriage and employment that did use such controls (Philliber & Hiller, 1983) found no effects for discrepancies between husbands' and wives' job status once the main effects of each variable were accounted for. Given that most studies of homogamy have not followed this procedure, the possibility remains that homogamy itself does not affect marital outcome beyond the initial levels of particular variables (see also Kenny & Acitelli, 1994).

Effects of personality. To clarify the effects of personality on marital outcome, the 56 traits that have been examined in longitudinal research on marriage were first aggregated, within each study, into five factors—neuroticism, extraversion, impulsivity, agreeableness, and conscientiousness—that have been shown to underlie more specific listings of personality traits (e.g., McCrae, Costa, & Busch, 1986) before being aggregated across studies. Of these five personality factors, neuroticism—more generally referred to as *negative affectivity* (D. Watson & Clark, 1984)—shows greater effects on marital outcome than the other four factors. One study obtained effects for neuroticism across 40 years and found them to be more significant than the effects of background variables over the same period (E. L. Kelly & Conley, 1987). Whether other personality variables account for significant variance in marital outcome after controlling for neuroticism remains to be examined.

Effects of age and time. Both greater age at time of initial measurement and greater age at marriage predict increased stability and satisfaction, but these effects are confounded by each other and with the effects of marital duration discussed previously. The unique effect of these three variables may be similar, but their relative importance in predicting marital outcome has yet to be disentangled.

Effects of premarital cohabitation. Premarital cohabitation appears to predict marital instability, but this result should be interpreted with caution. Teachman and Polonko (1990) found that the effects of premarital cohabitation on stability were eliminated when controlling for the entire duration of the relationship. That is, the divorce rates of cohabitors and noncohabitors did not differ at equal distances from the start of the relationship. This result awaits replication, but it suggests that cohabitation itself may not affect marital stability directly. Unfortunately, cohabitation has not been studied in relation to the longitudinal course of marriage, leaving open the question of whether premarital cohabitation is merely associated with a greater willingness to divorce, or whether the quality of these marriages develops differently compared with the development of marriages of couples who do not cohabit premaritally. In a cross-sectional study that lends some credence to the former possibility, Newcomb (1986) found that cohabitors were less traditional and felt less connected to their families of origin than were noncohabitors.

Effects of income. The prospective effects of income on marriage appear to depend at least in part on the source of income. For example, husbands' income and husbands' employment have positive effects on marital stability, whereas wives' income and employment have the opposite effect (cf. Greenstein, 1990). Because the effect of wives' income and employment on marital satisfaction has not yet been studied, it remains unclear whether the financial independence of wives merely lowers barriers to divorce, or whether the marriages of financially independent wives also become less satisfying. Galligan and Bahr (1978) replicated the positive effects of a family's earned income on marital stability and then showed that this effect was eliminated after controlling for a couple's level of financial assets and savings (cf. Cherlin, 1979). These results suggest that the absolute income of a couple may matter less to the marriage than the amount of stable financial resources from which a couple can draw. On the other hand, receiving public assistance—a different stable source of income—has the opposite effect, predicting slight declines in marital stability across four survey studies and in one experimental study (Hannan et al., 1977). More research is needed to determine what aspects of these different financial resources determine the nature of their effects on marriage and what variables might mediate these effects.

Effects of stress. The effects of noneconomic stress and stressful life events have been studied infrequently. When different sources of stress have been examined prospectively, however, the presence of stress predicts lower marital stability and less marital satisfaction over time. One exception to this trend is the transition to parenthood. The experience of becoming a parent, similar to other stressful events, may lead to declines in marital satisfaction (e.g., Belsky, 1985; Belsky & Pensky, 1988; Belsky, Ward, & Rovine, 1986; Hoffman & Manis, 1978) but, unlike other stressors, may also lead to increased marital stability (Heaton, 1990). Research has not yet examined why the transition to parenthood may have different effects on marital stability than other stressful life events, but a possible explanation is that parenthood is a normative life event whereas other events, such as being fired or having a car accident, are not. One study that examined only normative family transitions found that experiencing such transitions had no effects on marital satisfaction (Menaghan, 1983). Some evidence within the transition to parenthood literature supports the idea that expectancies about an event may influence the nature of the effect that the event has on marriage. For example, Belsky et al. (1986) have shown that realistic expectations about the impact of parenthood moderate the negative effect that parenthood has on marital satisfaction. Further research into the role of expectations in marriage may explain how some life stressors can divide couples whereas others may bring couples closer together.

Effects of behavior. The longitudinal effects of more than 50 behavioral variables have been reported. To clarify the findings of this research, specific dimensions of marital interaction were first aggregated within each study into broad factors that capture the main themes of this literature: positive behavior, negative behavior, avoidance, positive reciprocity, and negative reci-

procity. Effects for each factor were then aggregated across studies to assess the overall effect that each class of behavior has demonstrated within this research. Adopting this approach offers insight into an existing disagreement about the effect of negative interaction behaviors on marital outcomes. In a study of established marriages, Gottman and Krokoff (1989) found that ratings of husbands' and wives' negativity during interaction correlated positively with marital satisfaction 1 year later; that is, negativity during interaction predicted greater increases (or smaller decreases) in marital satisfaction over time. Although this study has been challenged on methodological grounds (Woody & Costanzo, 1990; cf. Gottman & Krokoff, 1990), a more recent study by Heavey, Layne, and Christensen (1993) reported the similarly counterintuitive finding that the negativity and demandingness of husbands correlated positively with the later satisfaction of their wives. These results are provocative because, if replicated, they suggest that behaviors perceived as negative concurrently may benefit marriage longitudinally. The current review was able to evaluate this hypothesis using all 14 longitudinal studies of negative interaction. The effects combined in this way varied substantially in direction and magnitude, and, therefore, the aggregate *r*s reported for negative behavior in Figures 1 and 2 should be viewed with caution. Nevertheless, the weight of evidence suggests that the overall effects of negative interaction behaviors on marriage are not positive. When the dependent variable has been marital stability, this result is unambiguous. Without exception, more negative behaviors in husbands and wives predict less stable marriages over time. When marital satisfaction is the dependent variable, there have been specific counterintuitive findings, as noted above. However, the overall effect across specific behaviors and across studies is that the negative behavior of husbands and wives predicts lower satisfaction for husbands and wives over time.

Conclusion. Relatively few longitudinal studies of marriage have been linked explicitly to the four theories of marriage reviewed earlier. Thus, whereas several basic propositions from these theories have received support (e.g., negative behaviors, an unhappy childhood, and stress predict negative marital outcomes, consistent with behavioral theory, attachment theory, and crisis theory, respectively), most hypotheses have not been tested in ways that might refute the theory or elaborate on basic propositions. Examination of mediation, moderation, or intervening mechanisms, for example, is rare, as is research that links variables from different theories or disciplines. Instead, much of this research has been atheoretical, tending to examine idiosyncratic groups of variables for their direct effects on marital outcome at some later time. In the absence of a common theoretical framework to guide the selection of these variables, there have been few attempts to replicate or build on previous research. Consequently, the past 50 years have witnessed marital research becoming broader, in that more and more variables have been examined as predictors of marital outcome, but not deeper in that the resulting findings have not advanced the field toward a more thorough explanation of marital development.

While granting the complexity of this task, we believe that progress toward explaining marital development has been hindered because, even in the course of conducting longitudinal research, researchers have adopted models of marriage that focus on marital outcomes while providing little opportunity to clarify how couples arrive at those outcomes. That is, emphasis has been placed on predicting the eventual degree of stability or satisfaction in marriage rather than on clarifying how marriages become more or less satisfying, or more or less stable, over time. Because the inadequacy of much of the available longitudinal data on marriage seems to stem from shortcomings in the available models, we believe it would be misguided to merely restate the often-repeated call for more longitudinal research on marriage. Indeed, the foregoing analysis indicates that the large body of longitudinal research on marriage allows us only to begin answering basic questions about how some marriages remain stable while others deteriorate and dissolve. As a first step toward more informative data, it appears necessary to develop models that specify mechanisms by which marriages improve, worsen, and stabilize over time.

The collected findings of longitudinal research on marriage do not indicate the precise shape that such models must take, but in standing back from the specific findings, it is possible to identify broad empirical themes that support basic premises from the theories reviewed earlier and that may therefore serve as valuable building blocks for an integrative model of marital development. For example, attachment theory argues that the relationship needs each spouse brings to the marriage have important effects on marital development. Associations between marital outcome and such variables as family history and neuroticism support this premise, highlighting the role of *enduring vulnerabilities*, or the stable demographic, historical, personality, and experiential factors that individuals bring to marriage. It would be difficult to imagine a model of marriage that did not in some way account for the individual histories and enduring traits that each spouse brings to the relationship. Crisis theory draws attention to the effects that the external circumstances of a couple will have on the marriage, and indeed the replicated effects of stress and economic variables point to the importance of *stressful events*, or the developmental transitions, situations, incidents, and chronic or acute circumstances that spouses and couples encounter. Again, it seems likely that understanding how marriages develop requires an examination of how the ecological niche that couples occupy acts to keep couples together or draw them apart. Finally, the behavioral model suggests that the interaction between spouses is the engine of marital development, and the strong effects of the behaviors that spouses exchange and their cognitions about the marriage bear this out, indicating a need to include *adaptive processes*, or the ways individuals and couples contend with differences of opinion and individual or marital difficulties and transitions. Again, it seems a minimal requirement that a complete theory of marital development should address the ways that spouses treat and respond to each other. In summary, many of the reliable findings of longitudinal research in marriage to date can be captured with broad themes that are central to different theories that we reviewed. The task remains to begin integrating these higher order constructs into a coherent model of marital development that may prove capable of guiding future longitudinal research on marriage.

Integrating Prior Theory and Research: A Vulnerability–Stress–Adaptation Model of Marriage

The purpose of this section is to describe a framework that combines the important theoretical contributions and empiri-

cal findings identified in the preceding sections. Figure 3 shows how enduring vulnerabilities, stressful events, and adaptive processes might combine to account for variations in marital quality and stability over time. Although variables reflecting each of these themes appear to account for marital outcomes when considered separately, we argue that it is their joint consideration in a single framework that is likely to yield the greatest explanatory power and provide the most information about how marriages change over time.

Overview of the Model

Because it is the only theoretical perspective reviewed that specifies a mechanism of marital change (see Table 1), tenets of behavioral theory are assigned a central role in the present model. Accordingly, a reciprocal relationship is specified between the ongoing process of adaptation within marriage and judgments of marital quality, representing the hypotheses that a spouse's marital quality should change as a function of his or her accumulated experiences with and reactions to behavioral exchanges in the marriage (Path F) and that judgments of marital quality will affect how spouses contend with and resolve various difficulties and transitions (Path G). The rationale for emphasizing behavioral exchange in this manner also derives from the work of Kelley et al. (1983), who argued that any variable that affects a close relationship can do so only through its influence on ongoing interaction.

The behavioral model can be viewed as incomplete in two respects, recognition of which suggests important directions for a model of marital change. First, within this approach little attention is given to the possibility that, for a given couple and between couples, there is a great degree of variability in the types of life events and circumstances that they encounter. Crisis theory and our review of research indicate that this is an important oversight, particularly because the behaviors that spouses exchange are likely to be determined in part by the stressors and difficulties that they confront (Path A) and because the nature of how couples respond and adapt to these events can exacerbate or alleviate them (Path E).

Second, a tacit assumption of the behavioral approach is that spouses' socioeconomic status (SES; e.g., years of education), experiences prior to marriage (e.g., in their family of origin), and their personalities are not important influences on the course of marriage. Attachment theory and our review of research suggest that this assumption may be unwarranted. The present view is that stable personal characteristics such as these can contribute to the stressful events to which couples must adapt (Path C) and can affect how well couples adapt to individual and marital difficulties (Path B). In summary, we believe that the behavioral model provides an important foundation for a model of marital change and that it can be strengthened further by consideration of the ecological niches that couples inhabit and the stable personal characteristics they bring to the marriage. The paths of the resulting vulnerability–stress–adaptation model are examined next in greater detail to demonstrate how the framework integrates research findings and highlights gaps in our understanding of marriage.

Hypotheses and Research Implications

Path A: Stressful events to adaptive processes. The review of research has already shown the longitudinal association between life stressors and marital outcomes, but a variety of cross-sectional evidence suggests that life stress operates on adaptive processes as well. Several studies have shown that the behaviors spouses exchange are affected by the nature of the stress couples encounter. For example, unemployment in blue-collar workers (Aubry, Tefft, & Kingsbury, 1990) and increases in the daily workload of air traffic controllers (Repetti, 1989) covary with more negative interactions between spouses, independent of their marital satisfaction. In two diary studies, marital interactions described as negative were more likely to be reported on days that had been stressful and were more likely to be reported on weekdays than on weekends (Bolger, DeLongis, Kessler, & Wethington, 1989; Halford, Gravestock, Lowe, & Scheldt, 1992). These results support the view that circumstances external to couples can affect adaptation between spouses, which may account for the longitudinal link between stressful events and marital outcomes. Although most research on adaptive processes has focused on marital interaction, variations in the stressors spouses experience may also affect other aspects of adaptation, such as the capacity of spouses to provide social support and the attributions that spouses make for partners' behaviors.

Path B: Enduring vulnerabilities to adaptive processes. Spouses' capacity for adapting to stressful circumstances also will be influenced by the enduring vulnerabilities that individuals possess. Whereas there is abundant evidence that marital

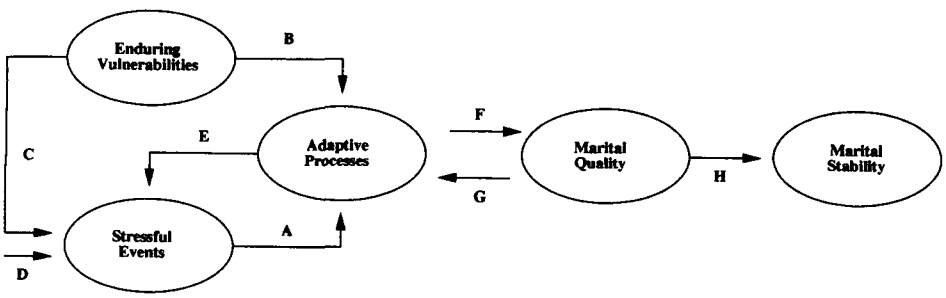

Figure 3. A vulnerability–stress–adaptation model of marriage.

outcomes are predicted by various enduring vulnerabilities, cross-sectional and longitudinal evidence supports the idea that the backgrounds and traits that spouses bring to the marriage also affect adaptive processes. For example, spouses' self-reports of their childhood family of origin are associated with the number of specific complaints about their own marriage (Overall, Henry, & Woodward, 1974) and with general attitudes towards the institution of marriage (Franklin, Janoff-Bulman, & Roberts, 1990). Life-span studies conducted over 20 years have found that children of distressed or dissolved marriages have poorer social skills as adults (Franz, McClelland, & Weinberger, 1991; Koestner, Franz, & Weinberger, 1990). Among other relatively stable variables, spouses' levels of education (Griffin, 1993) and their personalities (McGonagle, Kessler, & Schilling, 1992) have been linked directly to the quality of their marital interactions, and negative affectivity in particular has been linked to the attributions spouses make for partner behaviors (Karney et al., 1994). Taken together, these results suggest that the enduring vulnerabilities spouses bring to marriage may exert their longitudinal influence on marital outcomes through their effects on spouses' ability to adapt to the challenges they encounter.

Path C: Enduring vulnerabilities to stressful events. The theories of marriage reviewed earlier do not specify the relationships among various variables thought to predict marital outcome. As we have argued, however, explaining development in marriage requires an understanding of how the variables that affect marriage over time also affect each other over time. The model accounts for these effects by including paths that describe some sources of stressful events. Whereas many stressful events can be products of chance variables (Path D), other stressful events and circumstances will result from the enduring vulnerabilities of the spouses themselves. Research in developmental and personality psychology has found that individuals' early experiences have lasting effects throughout the life course. For example, the negative effects of parental divorce and early environment on adult achievement and adjustment are well established (Amato & Keith, 1991; Rodgers, 1990; G. E. Vaillant & Vaillant, 1990). Life-span research similarly has shown that childhood personality is associated with levels of adult accomplishment (e.g., Caspi, Bem, & Elder, 1989). Cross-sectionally, personality traits have been associated with frequency of adverse life events (Poulton & Andrews, 1992), and negative affectivity in particular has been associated with experiencing life events as more stressful (Marco & Suls, 1993). Research on depression has shown that chronically depressed individuals often generate stressful circumstances in their lives that then serve to maintain their depression (Hammen, 1991). These findings suggest that enduring vulnerabilities that spouses bring to marriage contribute to the stressful life events and circumstances that individuals and couples encounter; thus, these two factors should be studied jointly for their effects on marital development.

Path E: Adaptive processes to stressful events. Consistent with McCubbin and Patterson's (1982) double ABCX formulation of crisis theory, this model allows for adaptive processes to affect the likelihood of subsequent stressful events. Poor adaptation may allow stressful events to perpetuate or worsen whereas adequate adaptation may help to alleviate them. The capacity of the marital relationship to influence the challenges and stressors encountered by couples is evident in research on marriage and health. For example, lower marital quality has been found to predict longer periods of recovery from heart attacks (Waltz, 1986), and it is plausible to infer that the behaviors exchanged between patients and their spouses mediate this effect. More direct evidence for the hypothesis is found in a longitudinal study of clinically depressed individuals that included direct observations of the emotional behavior of their spouses (Hooley, Orley, & Teasdale, 1986). Participants returning to relatively critical spouses were more likely to suffer relapses than were participants whose spouses were observed to be less critical. These results, together with those discussed in relation to Path A, suggest a vicious cycle whereby (a) stressful events challenge a couple's capacity to adapt, (b) which contributes to the perpetuation or worsening of those events, (c) which in turn further challenge and perhaps overwhelm their capacity to adapt.

Path F: Adaptive processes to marital quality. As a result of research in the behavioral tradition, a modest but consistent link between behaviors exchanged in problem-solving discussions and change in marital satisfaction has been established. Although most of the interest in Path F has been devoted to determining whether this association exists, attention is now likely to shift toward clarifying the mechanism by which observed behaviors come to affect reports of marital quality. Bradbury and Fincham (1991) have hypothesized that the manner in which spouses appraise a problem-solving interaction after it occurs should mediate the association between behavioral exchange and change in marital satisfaction (see also Bradbury, 1990). According to this view, appraisals of an interaction should also affect how spouses approach subsequent interactions. Consistent with this possibility is the finding that baseline levels of physiological arousal, collected before an anticipated problem-solving discussion, predict declines in marital satisfaction (Levenson & Gottman, 1985). Including a mechanism of this sort in the present conception of adaptive processes is likely to prove important because it helps to explain how a marriage can remain fulfilling even when relatively high levels of negative behavior are exchanged (e.g., spouses appraise negative interactions as a way to clear the air, or they make benign attributions for the behavior) and because it provides a means by which one interaction can affect subsequent interactions. In this way, the focus on learning in the behavioral (or social learning) model could shift away from an emphasis on the rewards and costs associated with discrete behaviors to an emphasis on how couples learn to avoid certain topics (Christensen & Heavey, 1990) or on how couples learn that they can overcome stressful events through their own interaction.

Path G: Marital quality to adaptive processes. Judgments about marital quality are expected to either diminish or enhance couples' capacities to engage in effective marital problem solving, to provide emotional support for each other, and to adapt to stressful events. Marital researchers have rarely examined the predictors of change in adaptive processes, so evidence supporting this hypothesis is rare. However, one longitudinal study that collected multiple self-reports of newlyweds' socioemotional behavior found that spouses' judgments of marital quality did predict change in the partner's behavior (Huston & Vangelisti, 1991; also see Noller, Feeney, Bonnell, & Callan,

1994). Specifically, wives of initially more satisfied husbands became more affectionate, and husbands of initially more satisfied wives became less negative across the first 2 years of marriage, controlling for initial levels of those behaviors. Continued study of Path G is important for determining its strength relative to Path F, but the lack of research on Path G leaves open the possibility that marital quality accounts for variation in marital behavior more than marital behavior leads to changes in marital quality.

Path H: Marital quality to marital stability. Given repeated failures in adaptation, marital quality is likely to decline, and the probability of marital instability will increase accordingly. Some of the earliest (e.g., Terman, 1950) and some of the most recent (e.g., Kurdek, 1993) longitudinal studies of marriage have found support for a link between marital quality and marital stability. Whereas a review of the research shows that the magnitude of this link has not been large, the effect has been well replicated.

Higher order hypotheses. We have shown that the individual paths of the model integrate a wide range of existing findings, but the greater power of this framework for understanding marital development is revealed in hypotheses that involve the model as a whole. The model suggests that couples with effective adaptive processes who encounter relatively few stressful events and have few enduring vulnerabilities will experience a satisfying and stable marriage, whereas couples with ineffective adaptive processes who must cope with many stressful events and have many enduring vulnerabilities will experience declining marital quality, separation, or divorce. Couples at other points along these three dimensions are expected to fall between these two extreme outcomes.

One implication of this framework is that the relationship between any two of these three dimensions will be imperfectly understood without information on the other dimension. For example, all else being equal, couples with many enduring vulnerabilities should have a weaker capacity to adapt to stressful events (Path B) and so should experience poorer marital outcomes. The strength of this type of relationship, however, will depend on the nature of the stressors that the couple encounters. Couples in which spouses have relatively high levels of personal vulnerability may still endure stably if the stress they experience is low enough that it does not tax their capacity to adapt. Similarly, all else being equal, high levels of stress should strain a couple's capacity to adapt (Path A) and so should result in poorer marital outcomes. Again, however, this effect should be strongest for those couples with many enduring vulnerabilities. Couples experiencing highly stressful events may still endure stably if they have few vulnerabilities and consequently have a high capacity to adapt to those events.

Formulating the relationship between stressful events, enduring vulnerabilities, and adaptive processes in this way suggests hypotheses involving dependent variables other than eventual levels of marital quality or marital stability. For example, given that a couple's level of enduring vulnerabilities is expected to remain relatively stable, variation in a couple's experiences of stress over the course of their marriage should predict the timing of declines in marital satisfaction and the duration of eventually unstable marriages. That is, all else being equal, otherwise satisfied marriages should experience declines in marital quality following increases in their level of stress, and unhappy marriages should be more likely to end following increases in stress. Some support for these hypotheses comes from the literature on the transition to parenthood, which has demonstrated that otherwise happy couples experience declines in their marital satisfaction following the birth of a first child, presumably because of the stresses associated with having children (Belsky, Lang, & Rovine, 1985).

Critique of the Model

Strengths of the model. The vulnerability–stress–adaptation framework meets the three criteria for a developmental theory of marriage that we outlined. First, the framework links broad and specific levels of analysis. For example, through Path B broad demographic variables such as level of education or ethnic background may be linked to micro-level variables such as sequences of marital interaction. Second, by positioning adaptive processes as mediating the effects of stress and vulnerability on marital outcomes, the framework suggests specific mechanisms through which stress and vulnerability lead to changes in marriage. Finally, by focusing on the interaction between stress and vulnerability in their effect on adaptive processes, the framework can account for variations in marital outcomes both between and within couples. To illustrate, according to this model, a couple in which both partners possess many enduring vulnerabilities may endure stably in the absence of stressful events requiring adaptation. Similarly, a couple with few vulnerabilities that has endured stably still may decline in marital quality when their level of stress increases beyond their ability to adapt. In this way, the proposed framework accounts for both change and stability in marital satisfaction, as well as when changes are most likely to occur.

Another strength of this framework is that it lends itself to testing and refutation. Specific hypotheses follow from the individual paths of the model, and higher order hypotheses emerge from the framework as a whole. The higher order hypotheses are important because they provide a simple means of testing the incremental contribution of the framework beyond previous theories of marriage. For example, we have suggested that the effect on marital outcome of any one element of the vulnerability–stress–adaptation framework will be imperfectly understood without information on the other elements. If data on the interaction between enduring vulnerabilities and adaptive processes does not account for changes in marital quality significantly better than either factor independently (as behavioral theory and attachment theory would suggest), then the present framework will have been refuted.

Limitations of the model. Given the variety of research and theory that has touched on development in marriage, we have chosen to emphasize integration over detail. As a result, our presentation of the vulnerability–stress–adaptation model awaits elaboration in a number of areas. For example, the model specifies one factor that is likely to influence the eventual stability of marriages—marital quality—yet social exchange theory argues persuasively that factors external to the marriage (e.g., barriers to leaving the relationship and the presence of attractive alternatives) are likely to influence the decision to divorce as well. The current framework does not address the decision to

divorce in detail, emphasizing instead the factors that lead to changes in marital quality.

The relationship between stress and vulnerability also warrants greater detail than it receives in the current model. Research on the effects of stress on adult development (see Monroe & Simons, 1991) raises the possibility that chronic and acute stressors may affect marriage differently. For example, where acute stressors may engage a couple's adaptive capabilities directly, chronic stressors may affect marriage only in the presence of enduring vulnerabilities. In the interests of parsimony, the current framework does not distinguish between acute and chronic life stress; data are still needed to determine whether enduring vulnerabilities affect adaptation to acute and chronic stressors differently. In addition, whereas we have argued that stress and vulnerability are important to marriage, the model does not describe exactly how stress and vulnerability combine to influence adaptation. In the absence of research that indicates whether these effects are additive, interactive, or some combination of the two, the exact nature of this relationship has been left unspecified.

Finally, direct consideration of between-spouse differences in the experience of stress, vulnerability, or marital quality is also absent from the model, but this should not be taken to imply that distinctions between spouses are insignificant. Although the presence of stress and vulnerability in either partner should influence processes between spouses, between-spouse differences in these factors may have effects beyond the effects of initial levels of the variable (although, as we have argued, such effects have not yet been demonstrated definitively). In the absence of direct support for the effects of differences between spouses, we have chosen to keep the model parsimonious and not to account specifically for between-spouse distinctions in the model.

Conclusions

Longitudinal research is most likely to advance an understanding of marriage when it is guided by and capable of refining theories of marital development. In this section, we proposed a model of marital development that incorporates the strengths of previous theories of marriage, accounts for the reliable findings of longitudinal research on marriage, and suggests hypotheses for future research on how marriages change. As we have noted, the model is incomplete in some ways. However, at this stage an incomplete but simpler model may be preferable to a more inclusive but more complicated one.

Summary, Recommendations, and Conclusion

A guiding premise of this review is that questions about change and development in marriage are most likely to be answered by research that follows married couples over time. The purpose of the review was to summarize and evaluate the theories, methods, and findings that are evident in the longitudinal studies that have been conducted to date and to offer a theoretical framework derived directly from this literature that has the potential to stimulate and guide subsequent research in this domain. In this section, we summarize the main points of our analysis, and we offer several recommendations for conducting research that may help clarify how marriages grow, evolve, and change.

We began by reviewing four theoretical perspectives that have informed research on marriage. Each perspective addresses important aspects of marriage, but no single theory incorporates the full range of possible predictors of marital outcomes or attempts to explain the full range of possible marital outcomes over the course of a marriage. To determine the reliable findings that have emerged from research on change in marriage, the methods and results of 115 studies that follow marriages over time were reviewed next. A wide variety of methods were used in these studies, reflecting the disparate goals and perspectives that have motivated this research. The strengths of these methods include the collection of observational data and the increasing sophistication of techniques for analyzing data. The weaknesses of these methods stem from a static perspective on marriage that hinders even longitudinal research from illuminating marital change. Several recommendations for improving the methods used to study marriage were offered, including paying greater attention to sample composition, collecting multiple assessments of large samples, and addressing change in marriage in more direct ways with advanced statistical methods. Although we recognize the constraints on interpretation imposed by these methodological limitations, we used meta-analytic techniques to summarize the findings of the 115 longitudinal studies of marriage. These analyses revealed that, whereas effect sizes vary widely in magnitude, positively valued variables tend to predict positive outcomes and negatively valued variables tend to predict negative outcomes.

Perhaps the most important conclusion is that there remains a strong need for longitudinal research on marriage, but there is a greater need for longitudinal theory to guide this research. To meet this need, a model of marital development was outlined that integrates three broad classes of variables that emerged from our review of the data and seem essential for understanding marital development: the *stressful events* that couples encounter, the *enduring vulnerabilities* that spouses bring to the marriage, and the *adaptive processes* through which couples contend with difficult circumstances. Briefly, the model holds that married couples must adapt to a variety of stressful events and circumstances that they encounter over the course of their lives. The capacity of a couple to adapt depends on the degree of stress they experience and the enduring vulnerabilities that each spouse brings to the marriage. Couples' accumulated experiences with adaptive processes gradually influence their perceptions of their marital quality, which ultimately contribute to the stability of the marriage. Key strengths and limitations of the framework were outlined.

Research Priorities

The developmental perspective that we described has broader implications for marital research than merely testing hypotheses specified by the model. Several areas that deserve attention are discussed below.

Describing marital quality over time. Most longitudinal research on marriage has been devoted to defining and studying independent variables that predict change in satisfaction and stability over time. Noteworthy by its absence is a comparable

interest in clarifying the nature of the dependent variables. Data that merely describe how marital quality can change over the course of a marriage are rare (cf. Johnson et al., 1992; C. O. Vaillant & Vaillant, 1993). Although marital quality appears to decline with time across couples, marital quality within couples may follow a number of possible courses, including initial rapid declines followed by stabilization, gradual linear decline, wide variability over time, or even increases over time. No research to date has examined patterns of change that different couples may experience. Although there may be a limited number of these patterns, the variables that influence change in marriage may differ for distinct trajectories of marital quality. For example, stressful life events may play a more important role in marriages that fluctuate widely in marital quality before ending in divorce, whereas deficient adaptive processes may be more important in marriages that deteriorate over many years before ending in divorce. To understand these differences and avoid masking potentially important effects, the occurrence and frequency of these patterns must first be described.

Examining homogenous samples. Even within the sample constraints that are evident in this research domain (i.e., homogeneity with regard to race, religion, and SES), many samples nevertheless include sources of heterogeneity that can lead to interpretive difficulties. For example, the presence of couples varying widely in marital duration can lead to artifactual associations between predictor variables and marital outcomes (see Monroe, 1982). Some studies have tried to address this problem by statistically controlling for marital duration and initial levels of satisfaction, yet this solution does not account for the possibility that the variables that influence marital development may vary at different stages of marriage and at different levels of marital satisfaction. In particular, the variables that give rise to marital distress are likely to be distinct from the variables that maintain marital distress once it is established in a marriage. Longitudinal studies that combine distressed and nondistressed couples, therefore, confound the onset of marital distress with its course. A better solution to this problem is to examine more homogenous samples. Newlyweds, for example, presumably begin their marriages with a low incidence of marital distress, so they may be studied to examine how initially happy couples stay satisfied or become less so. Samples consisting solely of couples experiencing similar levels of marital distress also would be valuable, allowing researchers to identify variables that differentiate unhappy couples who stay married from unhappy couples who divorce.

Complete longitudinal designs. Most longitudinal research on marriage has focused on associations between Time 1 predictors and later marital outcomes. A developmental perspective, however, suggests that predictor variables themselves may change over time and that these changes may be as important as the initial levels of variables for understanding marriage. This possibility is rarely addressed in longitudinal research, and as a result it is difficult to address the possibility that changing marital outcomes may affect a given predictor more than that predictor affects change in marital outcomes. In the current model, reciprocal paths between stress and adaptive processes and between adaptive processes and marital quality account for reciprocal relationships between these variables as they change over time. For example, behavior in marital interactions, which has been studied almost exclusively as an independent variable, is also likely to change, as a function of stress, marital quality, and enduring vulnerabilities. Assessing most or all variables of interest at each phase of measurement would help reduce the disparity between the dynamic nature of marriage and the research designs used to study it.

Incorporating cross-sectional and retrospective data. Although it has been the assumption of this review that longitudinal designs are the most appropriate for addressing questions of change in marriage, cross-sectional and retrospective research can also contribute to a developmental perspective on marriage. For example, as noted in the definition of the stressful events construct, social or political change can affect marital development, but in longitudinal data such period effects are confounded with age and duration effects. To address the importance of these broad influences on the development of individual relationships, cross-sectional and retrospective studies conducted at various points in time may complement focused longitudinal research to provide a more complete picture of marital development.

Transition to marriage. Because relationships do not begin with marriage, it may be misleading to begin examining marriages only after the wedding date. How individuals choose marriage partners, different styles and lengths of courtship, and the decision to cohabit premaritally all may influence the subsequent course of a marriage. Although some have begun to address these issues through retrospective designs (e.g., C. Kelly, Huston, & Cate, 1985; Surra, Arizzi, & Asmussen, 1988), prospective data could follow samples of dating or engaged couples through their weddings to examine how the transition to marriage affects development after marriage.

Examining nonmarital outcomes. Longitudinal research on marriage is well suited for examining outcomes that are not directly related to the marriage. Research indicates that important outcomes such as physical health (Burman & Margolin, 1992), depression (Beach, Sandeen, & O'Leary, 1990), and children's adjustment (Markman & Jones-Leonard, 1985) are influenced by changes in marital quality and stability. Without much additional effort, researchers can assess these outcomes in longitudinal studies of marriage. Because these other outcomes are likely to have reciprocal effects on marriage (e.g., in the form of stressful events), it would be wise to examine these outcomes in appropriate detail.

Focusing on inclusive constructs. To date, longitudinal research on marriage has searched for specific variables to *predict* marital outcomes. To *explain* marital outcomes, however, it may be more valuable to focus on general constructs. The proposed model takes this approach, suggesting that many variables be examined as indicators of three broad variables: enduring vulnerabilities, stress, and adaptive processes. This approach is analogous to placing multiple items on a questionnaire: The individual items and their intercorrelations are less important than the theoretical construct thought to underlie them. One advantage of this approach is that it provides a means of contending with the diversity and complexity of marriage. For example, one marriage may fail because the husband is impulsive, whereas another marriage might fail because the husband is neurotic. On one level, these are different phenomena because the traits examined are different. From the present perspective, however, these couples

may be quite similar: In both marriages an enduring vulnerability may lead to increased stress and poorer adaptive processes. At this stage in the research on marriage, it may be more appropriate to adopt the broader focus and move to a more specific focus only after theories of marriage are more fully elaborated.

Conclusion

Since 1938, change and development in marriage have been examined in 115 studies, and in looking over these studies some broad trends are evident. The first longitudinal studies sought to determine if marital outcomes could be predicted at all. Self-report inventories were used to assess a wide range of topics, revealing that composite scores on such instruments were indeed associated with later marital outcomes. Subsequent generations of research can be seen as efforts to specify with increasing precision the aspects of marriage that predict marital outcomes and to refine techniques for assessing these variables and their effects. Whereas this research is not without flaws, it has yielded some key constructs that appear to affect how marriages develop.

The burgeoning interest in the longitudinal course of marriage suggests that a new generation of research is emerging, in which emphasis is shifting from predicting outcomes to explaining the chains and patterns of events through which marriages arrive at different outcomes. This wave of research will no doubt benefit from recognition of existing empirical accomplishments and from continued methodological developments, but it also must link new findings to explanatory frameworks that can guide future research. Although the demands of theoretically relevant, methodologically rigorous research are great, their payoff in understanding marriage and alleviating marital and family distress justifies the investment.

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