

MARITAL QUALITY OVER THE LIFE COURSE:

A HIERARCHICAL LINEAR MODEL OF

DURATION AND COHORT EFFECTS

by

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## ABSTRACT

Considerable debate over the trajectory of marital quality over the marital course has encamped into two major schools of thought: U-shaped or linear decline. Access to longitudinal data that extends into the later years of marriage and analytical techniques that allow tracking of changes in marital quality is often cited as a remedy for the limitations that plague much of this research. The sample, from the UCLA 1971-1997 Longitudinal Study of Generations, consisted of six waves of data on marital quality from three separate historical cohorts in intact, first marriages. Analyses were conducted using hierarchical linear modeling, a technique particularly suited for analyzing change across time in panel data, to determine duration and cohort effects on marital quality in marriages ranging from one to 69 years. The cohort married during the years 1945-1954 exhibited the familiar U-curve of both positive and negative marital quality. Results for the youngest cohort, married between 1964 and 1984, replicated similar research for a linear decline in positive marital quality and an increase in negative marital quality. While cohort effects were inconsistent, this study, unlike other longitudinal studies, replicated the U-shaped curve of marital quality found in previous cross-sectional studies in a cohort followed from the third through fifth decades of marriage.

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## CHAPTER I

### INTRODUCTION

The need for longitudinal studies for predicting marital quality has been voiced by several researchers (Berscheid, 1994; Bradbury, 1998; Glenn, 1990, 1998; Karney & Bradbury, 1995a). The call for this research theoretically stems from the characterization of marriage as a developmental phenomenon, best analyzed through longitudinal data (Bradbury, 1998; Johnson, Amoloza, & Booth, 1992; Nadelson, Polonsky, & Mathews, 1984; Parke, 1998).

According to cross-sectional data, most marriages initially report quality as high during the early "honeymoon" years, as declining during the middle years, and rising again during the postparental years. When plotted on a graph, this trajectory becomes what is universally known as the U-curve of marital satisfaction. The annualized divorce rate also reflects this trend in marital quality, particularly during the first decade. Although 50% of marriages end by the seventh year, that rate reduces to 10% for 20-year marriages (Clarke, 1995), and to a miniscule 1-2% of marriages in which the spouses are over 65 years old (Kunz & England, 1989). However, one cannot assume that marriages that last are necessarily marriages that are satisfying (Heaton & Albrecht, 1991). The questions then are: Does marital quality in later marriage increase due to attrition of dysfunctional marriages in the early to middle years, or does this increase in marital quality occur due to other forces operative in the post-parental, pre-retirement marriage?

Conditions specific to different phases of the marital course shape marriages, so that a marriage in its fifth decade differs quantitatively and qualitatively from a marriage in its first decade. For example, the early years of marriage may be more critical for the development of the conjugal bond, with couples negotiating more frequent and intense relational qualities, such as conflict resolution, as well as experiencing normative, yet stressful events, such as the transition to parenthood. Experiences during the later stages of marriage—particularly as couples move out of the family-building period into new stages of coping with adolescent children, the empty nest, retirement, or declining health—may present new issues for sustaining quality relationships.

Research on marital quality and/or stability late in the course of the marital career is notably lacking. Older persons are often excluded from this research, yet this group represents a large and growing segment of the population. Whereas 50% of marriages end in divorce, another 50% are lifelong (Halford, Kelly, & Markman, 1997). In their review of the longitudinal course of marital quality and stability, Karney and Bradbury (1995a) listed over 110 studies. Nearly 75% of the studies were for marriage of less than ten years' duration; 16 studies were for marriages from 10-19 years, and only 13 studies covered marriages lasting 30 years or more.

Marital status is often a significant predictor of individual emotional and physical well-being across the life span (Glenn & Weaver, 1985; Horwitz, White, & Howell-White, 1996; Wickrama, Lorenz, Conger, & Elder, Jr., 1997). Satisfying marriages act as a buffer for spouses, insulating them from psychological distress and negative life events, while marital distress and instability have negative consequences for the well being of children (Grych & Fincham, 1990). Until recently, the U-curve of marital quality, supported by a plethora of cross-sectional studies, has been the sine qua non for patterning marital quality over the life course. In the last decade, researchers, analyzing longitudinal data, have begun to question the verity of the U-curve (Glenn, 1998; Vaillant & Vaillant, 1993; VanLandingham, Johnson, & Amato, 2001). They propose that marital quality continues its initial decline throughout middle and late marriage, although the decline is less precipitous. Substantive longitudinal studies that examine marital quality for couples in long-enduring marriages, allowing cohort comparisons of marriages formed during different historical periods, are noticeably lacking.

## CHAPTER II

### LITERATURE REVIEW

Social scientists typically consider the U-curve of marital quality to be one of the most ubiquitous depictions of how marriages change or develop over time. In his 1980s decade review of research on marital quality, Glenn (1990) stated, “ a curvilinear relationship between family stage and some aspects of marital quality is about as close to being certain as anything ever is in the social sciences” (p. 823). Certainly, a review of early research on marital quality over the marital career tends to support this position. Such an authoritative and apparently exhaustive statement, however, is based on a less than definitive body of research, which will be reviewed here.

The fact that marital quality declines precipitously during the first ten years is a foregone conclusion, documented by a vast body of research (Kurdek, 1998, 2000; Lindahl, Clement, & Markman 1998). The present review includes those studies that contain information about the status or trajectory of marital quality from middle through late marriage and excludes those that focused only on studies of early marriage.

Another criterion for inclusion for review was those studies that define the dependent variable as marital quality rather than marital stability. Researchers relate the two constructs to each other; intuitively, marriages that are unstable and end in divorce are assumed to be unsatisfactory (at least as far as one party is concerned), although evidence exists that many marriages that endure well into the later decades are in fact stable, but unhappy (Heaton & Albrecht, 1991).

#### Marital Quality

Marital quality defined. Researchers base the earliest conceptualization of marital quality on the cost-reward tenets of social exchange and behavioral theories (Thibaut & Kelley, 1959). According to adherents of social exchange theory, “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 . . . between partners” (Huston & Burgess, 1979, p. 4). Marriages in which rewards outweigh costs

have higher satisfaction. Behavioral theories (Markman, 1981; Wills, Weiss, & Patterson, 1974) emphasize how judgments of marital quality actually change over time. That is, spouses learn on the basis of their interactions and the appraisals that follow from them whether or not they are in a rewarding or satisfying relationship (Bradbury & Fincham, 1991).

Marital quality, marital satisfaction, marital adjustment, marital happiness, or marital success—to name the most common appellations—have often been used interchangeably in marital research. Just what makes marriages satisfying, happy, successful, or of high quality and how researchers measure these processes or outcomes generates continuing deliberation in marital research. Sabatelli (1988) identified measures of *marital adjustment* as assessing behaviors that achieve a functional and harmonious relationship, including frequent positive interaction and few disagreements; *marital satisfaction* and *happiness* as gauging an individual's subjective attitude toward the partner or the relationship; and *marital quality* as a hybrid combining objective components of adjustment and subjective evaluations of satisfaction. Fincham and Bradbury (1987) have defined *marital quality* in terms of a spouse's sentiment, reflected in subjective, global, evaluative judgments of the partner or the relationship. Glenn (1990) summarized two schools of thought concerning the conceptualization and measurement of marital quality. The "feelings" school promotes marital quality as a matter of how one spouse evaluates or feels about his or her marriage and favors global single-item, self-report indicators, such as "How happy or satisfying is your marriage?" Adherents of the "adjustment" school (Spanier & Lewis, 1980; Gottman, 1993) view marital quality as more or less an objective, dyadic characteristic of the relationship, favoring multi-item behavioral indicators to measure concepts such as companionship, communication, and conflict. Widely-used and validated scale measures such as the Marital Adjustment Test (Locke & Wallace, 1959), the Dyadic Adjustment Scale (Spanier, 1976), and the Quality of Marriage Index (Norton, 1983) generally fall into this category. Scales with multiple dimensions (e.g., the Dyadic Adjustment Scale comprises four subscales for measuring dyadic cohesion, dyadic consensus, dyadic satisfaction and affectional expression) are useful for delineating different trajectories of change over the

marital course. Different constructs may follow different paths; satisfaction might follow a curvilinear path, whereas affectional expression might decline over time.

Related to the idea of multiple pathways for different marital domains, several marital researchers have advocated assessing marital quality in terms of independent positive and negative dimensions, rather than along a bipolar continuum (Crohan, 1996; Fincham, Beach, & Kemp-Fincham, 1997; Fincham & Linfield, 1997; Gilford & Bengtson, 1979). Johnson, White, Edwards, and Booth (1986) propose five dimensions of marital quality. In a confirmatory factor analysis, the positive dimensions of *marital happiness* and *marital interaction* covary while negative dimensions of *marital problems*, *disagreement*, and *instability* form empirically distinct phenomena. They conclude that scales of marital quality that combine measures of positive and negative dimensions would likely yield ambiguous findings and contribute little to an understanding of marital success. Fincham and Linfield (1997) developed a six-item Positive and Negative Quality in Marriage Scale to record evaluations of spousal qualities and feelings. Persons high in positive marital quality (PMQ) and low in negative marital quality (NMQ) fit the traditional understanding of happy, satisfied spouses, just as those low in positive and high in negative marital quality fit the exemplar for distressed spouses. Two other categories of moderately satisfied marriages were possible using this schema: spouses high in both PMQ and NMQ were classified as ambivalent; spouses low on both measures were classified as indifferent. To test the convergent validity of their measure, the authors compared the results of two groups of wives who scored the same on the unidimensional Marital Adjustment Test (MAT) to their scores on their two-dimensional PMQ-NMQ scale. Although their scores on the MAT were indistinguishable, on the separate dimensions of PMQ and NMQ, one group scored high in both positivity and negativity (ambivalent wives) and the other scored low in both positivity and negativity (indifferent wives). Thus, distinguishing between positive and negative dimensions of marital quality enabled one to obtain a more differentiated picture of marital quality.

Assessments of marital quality utilized in longitudinal research may be susceptible to unique forms of measurement error. Some measurements of marital quality may not be equally sensitive to changes in marital quality over time and the possibility

exists that assessments used for early marriage may not be valid for later marriages. For example, Glenn (1998) stated: "I have perceived no consistent difference in the way marital quality is conceptualized and measured, but the strongest evidence for the u-curve relationship with marital duration is with marital happiness and marital satisfaction . . . the only definition of marital quality that makes much sense is one based on how spouses feel about their marriages" (p. 570). On the other hand, Karney and Bradbury (1997) show evidence that the Marital Adjustment Test and Dyadic Adjustment Scale perform similarly to global measures of satisfaction in longitudinal designs.

Summary. In Karney and Bradbury's (1995a) review of marital quality and stability, over 30 measures of marital quality were employed in over 100 studies. A lack of consensus on how to measure marital quality—as well as what to call "it"—has contributed to a lack of cohesion in the literature on marriage. Recently, the use of the term "marital quality" has proliferated as a common generic designation (Karney & Bradbury, 1995a). Consensus on any single construct or assessment to capture the complexity of marital domains is unlikely. Such standardization could not capture the complexity of the various emotional, physical, psychological, cognitive, or behavioral domains in the marital relationship. In the real research world, such non-consensus mandates that marital researchers specify how they operationalize marital quality and acknowledge the precision or lack thereof with which it is measured.

### History of U-curve Research

Early U-curve studies. In the early 1960s, Pineo (1961) and Blood and Wolfe (1960) detected a linear decline in marital satisfaction over the course of marriage. Pineo's longitudinal study of couples, married up to 20 years, concluded that disenchantment characterizes marriages during middle age, due to declines specifically in the areas of companionship, affection, passion, common interests, and communication. Cuber and Haroff's (1965) oft-cited typology of marital types in a cross-sectional interview of middle-aged men and women age 35-50 echoed this decline in marital adjustment. The available literature of the time thus characterized mid-term marriages as

less satisfactory than early marriages. Information regarding marriages that endured beyond 20 years, however, was lacking.

Whereas early research documented a linear decline in marital satisfaction for marriages during the first 10-20 years, later studies determined that for longer marriages, marital quality or satisfaction followed a curvilinear path when examined cross-sectionally (Anderson, Russell, & Schumm, 1983; Rollins & Cannon, 1974; Spanier, Lewis, & Cole, 1975; Stinnett, Carter, & Montgomery, 1972).

Recently, Orbuch, House, Mero, and Webster (1996) replicated the curvilinear relationship between marital duration and marital quality with cross-sectional data that included marriages that had lasted as long as 45 years. They found both a decline in marital quality over approximately the first 20 years of marriage, followed by an increase in marital satisfaction beyond 25 years. The mean level of marital satisfaction at 35-44 years of marriage reached a level higher than that attained during the first four years of marriage.

Gilford and Bengtson (1979) questioned whether measurement affected the difference in studies that find a decline versus a U-curve in marital satisfaction. Using cross-sectional data from their Longitudinal Study of Generations, they decomposed marital satisfaction into two separate domains: positive interaction and negative sentiment. For three successive generations, a curvilinear trajectory for positive interaction and a linear decline for negative sentiments occurred. Gilford (1984) selected older individuals, ranging in age from 55 to 90 years old, from the same sample. Positive interaction was highest and negative sentiment was lowest for persons in the middle age group (63-70 years old), ". . . with spouses in the middle stages of old age enjoying a more favorable marital economy than those at either the earliest or latest stages" (p. 329).

Recent research on the trajectory of marital quality. Marital researchers in the 1980s and 1990s heeded the call for longitudinal studies to address marital quality over the life course. Although most of these research efforts concentrated on the first few years of marriage, a few did include marriages with longer duration.

Holahan (1984) documented a decline in marital satisfaction, using a subsample of husbands and wives from Terman's longitudinal study of the gifted (N = 161). She

collected data at two time points separated by 40 years, leaving no understanding of fluctuations in marital satisfaction over a 40 year span. Weishaus and Field (1988) interviewed 17 surviving couples of the Berkeley Older Generation Study, from young adulthood in the 1920s to old age in the 1980s. Almost half of these marriages exhibited a curvilinear trend, according to the authors' derived typology for marital stability and satisfaction. Although supporting the U-curve trajectory for marital quality, these two studies suffered serious methodological flaws (i.e., two, widely-spaced data points and an extremely small sample size, respectively).

Although the primary purpose of their longitudinal study was to determine personality and compatibility antecedents to marital stability and satisfaction, Kelly and Conley (1987) did include descriptive information on the trajectory of marital satisfaction over a period of 45 years for 110 couples identified as stably married. After the initial measure of satisfaction in early marriage (circa 1936-1941), both husbands' and wives' scores were below the mean on four-item measures of marital satisfaction in 1954-55 and 1980-81, supporting a continuing decline in satisfaction since early marriage.

Using their five-dimensional composite measure of marital quality, Johnson, Amoloza, and Booth (1992) found that individual evaluations of marital happiness and amount of interaction both decline; amount and intensity of disagreement, behavioral attributes that cause a problem in marriages, and divorce proneness exhibit no change over the 8-year span of the study. These researchers, unfortunately, did not specify the length of marriage at the time of first measurement, making it impossible to know if marriages were of short or long duration.

Vaillant and Vaillant (1993) used longitudinal prospective data, as well as retrospective data, from a 40-year study of matched couples to examine marital satisfaction and adjustment. Prospective results did not support a U-curve in marital satisfaction. Husbands and wives retrospectively constructed a Marital Life Chart, summarizing their marital satisfaction and enjoyment from the age of 20 until the age of 60 in consecutive 5-year periods. Both husbands and wives reported a U-curve of marital satisfaction. The authors concluded that the U-curve of marital satisfaction is likely an

artifact of both retrospective and cross-sectional designs rather than an accurate picture of change in marital satisfaction over time.

Glenn (1998) utilized a cross-sectional design to analyze a dichotomous measure called the Marital Success Index for data from the 1973-1994 American General Social Surveys. He constructed five 10-year marriage cohorts, first married between the years of 1933 and 1982. He reproduced the familiar U-shaped curve of marital quality, plotting the means of pooled data. Marital success declined for more than 10 years, beginning an upward trend toward the end of the second decade, and leveling off at about 40 years duration. In a separate logistic regression analysis, intercohort projections for marital success, however, showed a linear decline for marital success. Glenn concluded that the corresponding marital-stage differences in the marital quality of intact marriages are largely if not totally cohort differences in cross-sectional designs.

In a recent indictment of the U-curve of marital quality using longitudinal data, VanLandingham, Johnson, and Amato (2001), in a large national, 17-year, 5-wave panel sample, using a fixed-effects pooled time-series model, found declines in marital happiness at all marital durations and no support for an upturn in marital happiness in later years. The decline was substantial until around 20 years of marriage followed by a flat association in later durations up to 50 years. The authors state that some of the long-term decline in marital happiness was possibly due to a period effect, that took the form of a decline in marital happiness during the 1980s that leveled off during the 1990s. Others have corroborated this overall population decline in marital quality (Glenn, 1991; Rogers & Amato, 1997). According to the authors, a number of changes in American society may have made marriage a more difficult arrangement since 1990, thereby suppressing marital quality. These changes included growing economic inequality, increased work-family conflict associated with the movement of wives into the paid labor force, widespread disagreements about appropriate gender roles within marriage, and the rise of more individualistic attitudes toward marriage and family life.

Criteria for selection in this fairly exhaustive review obviously highlight the paucity of research about the course of marital quality in the later stages of marriage. Most of the early and cross-sectional studies support a U-shaped curve for marital

quality; more recent studies have used longitudinal data to support a linear decline into the golden years of marriage. Most of these studies explicitly endorse the need for marital quality data collected longitudinally. As Glenn (1998) states in his most recent work, "We must wait for the results of other studies, especially those with individual-level longitudinal data, before we give the mid-term upturn thesis a decent burial" (p. 575). The present study provides the data needed to assess marital quality longitudinally.

### Theoretical Explanation for Changes in Marital Quality

Researchers have offered various explanations for how marital quality changes over the marital course. Family development theory, in particular, connects the upturn thesis after mid-marriage to both family structure and developmental issues associated with the family life cycle.

Early family development theorists (Aldous, 1978; Duvall, 1957; Hill & Rodgers, 1964; Mattessich & Hill, 1987) identified underlying tasks central to shaping family and spousal relationships. Basic marital tasks, such as learning how to manage conflict and show affection, delineation of household roles, changes in the number and ages of children, and shifts in occupational status and economic well-being, place demands on the marital system. Stresses from parenting and work take attention and time away from the spousal unit. As marriages evolve, parenting moves on to managing adolescents or launching adult children, as well as fulfilling obligations to careers, all of which take their toll on marital bliss. According to family development theory, any increase in marital quality during the later years of marriage is attributed to the release from parenting and occupational roles (Orbuch, House, Mero, & Webster, 1996). In later years marriages, developmental tasks such as managing time spent alone or together can result in increasing satisfaction as spouses reclaim and renew a couple identity and lifestyle. Although one might expect coping with declining or chronic health issues in late life would tend to negatively affect marital quality, when Haynes et al. (1992) developed the Marital Satisfaction Questionnaire for Older Persons, they found that spouses appear to distinguish satisfaction with partner's health independently from satisfaction with the marital relationship.

Whereas family developmental theory offers an explanation for the rise in marital quality after mid-marriage, "Much of the dip [in marital happiness between marriages of shorter and longer durations] . . . remains when the independent variable is duration of marriage and adjustments are made for family life stage" (Glenn, 1989, p. 20). What theories then account for the continuous decline thesis in marital quality? Disillusionment models demonstrate how initial high expectations for marital bliss become tempered by the realities of marital life to account for declines in marital quality. That is, "Familiarity does not necessarily breed contempt, but it should dispel an idealized image of a spouse" (Glenn, 1989, p. 6). On the other hand, a shift toward declining or constant levels of marital quality in mid-term and later marriages may involve a form of habituation to the relationship. Habituation, in psychological terms, occurs when reactions to a stimulus weaken with repeated exposure to that stimulus. Even pleasant and rewarding stimuli—i.e., pleasant and rewarding marriages—become less so over time, accounting for stabilization in marital quality at lower levels (Johnson, Amoloza, & Booth, 1992). Most researchers working from the perspectives of disillusionment and habituation, however, have not extended their predictions beyond the early years of marriage.

As popular as the family development framework for explaining the decline and increase in marital quality may be, empirical research indicates that one can attribute at most 10% of the variance in marital quality to family life cycle categories (Anderson, Russell, & Schumm, 1983; Nock, 1979; Rollins & Cannon, 1974). Evidence exists that marital quality declines even among non-parent couples in both early and mid-term marriages (Belsky, Spanier, & Rovine, 1983; Bradbury, 1998; Lindahl, Clement, & Markman, 1998; McHale & Huston, 1985; White & Booth, 1985). This suggests some type of duration effect associated with a continuous decline in marital quality. However, VanLandingham, Johnson, and Amato (2001) found duration effects account for only about 4% of the variance in marital happiness. According to Glenn (1989), "The effects of birth and aging of children on marital satisfaction are still not entirely clear, and the effects of duration of marriage remain quite obscure" (p. 6).

### Methodological Explanations for Changes in Marital Quality

An oft-cited limitation of the early studies is that determining marital quality across the marital career is hampered when using cross-sectional designs that confound age, period or cohort effects. Cross-sectional designs examine age or duration *differences* in marital quality between groups sampled at one point in time, as opposed to longitudinal studies that examine age- or duration-dependent *changes* in marital quality for the same persons over several points in time.

Two methodological explanations are salient in explaining the apparent U-shaped increase in marital quality during the middle and later years of marriages. Since most marriages end before the 20-year mark, the increase in marital quality may be due to earlier elimination of poorer marriages through divorce. Attrition from divorce plagues both cross-sectional and longitudinal designs, however. Higher levels of marital quality in the later years revealed in cross-sectional studies may be a methodological artifact of cohort effects. A vast amount of literature has addressed the confounding of age, period and cohort effects (Donaldson & Horn, 1992; Kosloski, 1987; Schaie, 1986; Setterstein, Jr., 1999). Age effects refer to chronological physical, psychological, and cognitive maturation of an individual. Period effects, also known as time-of-measurement, environment, or history effects, are those historical events and cultural norms often anchored to specific calendar times. Cohort has been defined as "the total population of individuals entering the specified environment at the same point in time" (Schaie & Hertzog, 1982, p. 92), with the point of entry most often calculated as year of birth. Within the context of cohort, age, and period influences, shared fundamental experiences shape people's views of themselves, their world, their future, and their marriages. "Events are not just events that happened while life went on, but are events that shaped the way couples think, the way they do and did life, and the way they act in their relationships and everyday life" (Dickson, 1995, p. 50). Most older spouses rate their marriages as highly satisfactory (Adams & Bleiszner, 1995; Bograd & Silka, 1996). An older cohort's appraisal of their marriages as highly satisfactory may relate more to their socialization into marital roles of a particular historical period rather than to the actual satisfaction derived from marriage. The zeitgeist of marital ideology for older cohorts, in which

marriage was viewed as a sacred commitment and in which divorce was highly stigmatized, may constrain the propensity for these spouses to evaluate their marriages as unsatisfying.

### Longitudinal Data Analysis

The marital course denotes stability or change, suggesting that marriage from any perspective, is an inherently *temporal* phenomenon (Karney & Bradbury, 1995b). Studies of marital quality that utilize cross-sectional designs capture a snapshot of marital quality at only one point in time. These techniques treat change as primarily a characteristic of the group at the expense of considering change as a characteristic of the individual. Previous analyses of marital quality over time include plotting simple means for groups differing in marital duration (Gilford, 1984; Glenn, 1998; Orbuch et al., 1996), analysis of variance (ANOVA) (Gilford & Bengtson, 1979; Holahan, 1984; Vaillant & Vaillant, 1993; Weishaus & Field, 1988), and repeated measures multivariate analysis of variance (MANOVA) (Johnson et al., 1992). Over 70% of the longitudinal studies of marriage that Karney and Bradbury (1995a) reviewed use statistical techniques that analyze only two waves of data. Even when researchers use more than two waves, they typically analyzed the data as a series of two-wave designs. Rogosa, Brant, and Zimowski (1982) admonish, "Two waves of data are better than one, but maybe not much better" (p.744). Two waves of data contain an extremely limited amount of information about the change of each individual; and the trajectory of change is limited to linear models, precluding information about acceleration or deceleration of change parameters (e.g., curvilinear models of change).

Longitudinal effects on marital quality dictate examining change as a continuous process. Procedures for describing and examining longitudinal trajectories are variously known as hierarchical linear modeling (Raudenbush & Bryk, 2002), random coefficients modeling (Kreft & de Leeuw, 1998), and mixed linear modeling (Goldstein, 1995). Hierarchical linear models (HLM) have been widely used in cross-sectional research on persons clustered within social settings. The model is hierarchical in nature; for example, pupils nested within classrooms nested within schools; employees nested within departments nested within corporations. Developmental patterns require a method that is

able to identify both within-individual changes as a function of time and between-individual differences in patterns of change over time (McArdle & Hamagami, 1992). In longitudinal applications, time is nested within individuals and treated as a repeated measure model. At the second level, these individual parameters are treated as a new dependent variable to be explained by other variables (a second hierarchy). The first and second levels in hierarchical linear modeling are analogous to within- and between-subject variance in analyses of variance. HLM, however, simultaneously estimates both the effects of individual level and contextual influences on individual outcomes.

Hierarchical linear modeling is a straightforward approach to determine the shape of the course of marital quality from data collected over extended time periods, especially when the number and spacing of measurement occasions vary across persons. To date, no study has used hierarchical linear modeling as a template for studying change in marital quality from the early years through the later years of marriage.

Summary. From Glenn's (1990) statement about the certainty of the U-curve of marital satisfaction to his most recent proposal (1998) to hold off on burying the U-curve hypothesis, ideas about how marriages change across time remain muddled. With such dissension about the U-curve of marital quality, speculating as to which trajectory is most appropriate for descriptive purposes is difficult. Access to longitudinal data that span many decades and cohorts may help answer the question "Dip or decline?" in marital quality, because one can make comparisons across time periods and across cohorts. The present study proposes to answer this question by examining longitudinal data collected in six waves over a span of 26 years for three cohorts assessed simultaneously. Rather than offering hypotheses about the expected change, this study will concentrate on the following research question: Does a U-shaped curve or a linear decline best represent the trajectory for three different cohorts representing three separate historical periods?

## CHAPTER III

### METHODS

Data for the present study come from the University of Southern California Longitudinal Study of Generations (LSG) (see Bengtson, 1975). Initiated in 1971, the study began with a sample of over 300 multi-generational families comprised of 2,044 individuals and followed at six time points: 1971, 1985, 1988, 1991, 1994, and 1997. The original sample was from a population of 840,000 members of a Health Maintenance Organization in California, primarily servicing the health care needs of labor unions. Families were recruited from randomly selected male subscribers age 55 and over who had at least one grandchild age 16 or over. The initial sample thus included a Generation 1 (G1) grandparent (average age = 67.1 years), at least one Generation 2 (G2) middle-aged child (average age = 43.8 years), and a Generation 3 (G3) grandchild between the ages of 16 and 26 (average age = 19.7 years). The sample reflected predominantly white, working- and middle-class families. The LSG included these same family members in each subsequent measurement period across time, augmenting the sample with new spouses and children of the original respondents in later data collection waves. Beginning in 1991, the LSG added Generation 4 (G4) as the children of G3 (i.e., great grandchildren of G1, grandchildren of G2) turned 16 (N = 116, average age = 20.0 years).

#### Sample

Sample selection. Criteria for selection of the sample for this study included respondents in their first marriage, for whom year of marriage was recorded or could be computed from available data. A requirement for the study sample of Generations 1 and 2 respondents was for them to have participated and supplied marital quality data at the initial data collection point in 1971 and again for at least two other surveys. Most of the G3s (81%) were not married in 1971, but entered marriage during the next 14 years, prior to the second data collection period (1985). Those Generation 3 participants who were single in 1971 and were married by 1985 needed to have participated in their first data collection as a married person in 1985 and two subsequent collection periods.

No Generation 4 respondents have been included in the sample. Of the G4s added at age 16 in 1991 (n = 197), the vast majority (over 80%) did not marry in the next six years, and if they did marry had at most only two occasions of marital quality recorded. Another major exclusion to the sample was persons who had experienced a divorce prior to entering or during the study period, under the assumption that marriages that end in divorce are likely to differ from marriages that remain intact. This study also included those whose marriages ended due to the death of a spouse if marital quality data were available at initial data collection and at least two other time points.

The sample size was reduced further when, in order to ensure independence of data, spousal pairs in each generation were identified and one spouse was randomly selected for inclusion in the sample. Although couple data are available in the LSG dataset, most of the studies reviewed here that cover marital quality from middle-marriage onward, utilized the individual as the unit of analysis, even when couple data were collected (Kelly & Conley, 1987; Vaillant & Vaillant, 1993, Weishaus & Field, 1988). In order to compare the results of this study with the results of extant studies, individual data were deemed more appropriate.

Sample demographics by generation. As a result of the sampling criteria outlined, the final sample included 343 individuals from three different generations, of whom 152 were males and 191 were females. Twenty-four participants were from Generation 1, 179 from Generation 2, and 140 from Generation 3. The majority were white (95.6%) and had educational experience beyond high school (76.7%). Highest education level attained, a time-invariant variable, rather than income, a time-varying variable, was used as a proxy to indicate general socioeconomic status. Marital duration for the entire sample ranged from 1 year to 46 years and age at first measurement ranged from 16 to 69 years.

Sample demographics by cohort. Table 1 presents demographic data for the sample broken down by cohort rather than generation. The generation variable in the original study differentiated three generations: grandparents, child, and grandchild. In this study, the term cohort is used to designate cohorts based upon the year of marriage. To emphasize marriage rather than the individual as a developmental phenomenon, generational participants were classified into cohorts, using the era into which they

entered into and experienced the early years of marriage. The sociocultural norms that affect marriage, such as courtship, child bearing, early childrearing, and establishment of work and family roles, coincided with several mid-century historical events. This definition of cohort thus includes those whose marriages took place during the Great Depression and through World War II (Cohort 1, 1926-1944), those whose marriages took place post-World War II (Cohort 2, 1945-1955), and those whose marriages took place during changing sociocultural milieu of the 1960s and 1970s (Cohort 3, 1964-1984).

Table 1. Demographic Statistics by Cohort.

	Cohort 1	Cohort 2	Cohort 3*
N	42	161	140
Gender			
male	19	69	64
female	23	92	76
Year of first marriage			
mean	1935.0	1949.7	1975.6
s.d.	6.7	2.5	4.3
range	1926-1944	1945-1955	1964-1984
Marital duration at first measurement*			
mean	37.0	22.3	9.4
s.d.	6.7	2.5	4.3
range	28-46 years	17-27 years	1-21 years
Age at first measurement			
mean	57.2	43.0	19.2
s.d.	6.8	4.2	2.6
range	45-69 years	36-55	16-26
Year of birth			
mean	1914.2	1928.0	1951.8
s.d.	6.9	4.2	2.6
range	1902-1926	1916-1935	1945-1955
Highest education level attained			
% high school	31.0	26.7	4.3
% college	52.4	67.1	95.0

\*Cohort 3 includes 26 subjects married by 1971 (mean marital duration at first measurement = 2.00 years, s.d. = 1.6, range 1-7 years; mean age at first measurement = 22.4 years, s.d. = 2.2, range 18-26 years) and 114 subjects married by 1985 (mean marital duration at first measurement = 7.9 years, s.d. = 3.2, range 1-13 years; mean age at first measurement = 32.5 years, s.d. = 2.0, range 30-40 years).

A comparison of year of first marriage and year of birth is depicted by generation as defined in the original LSG and by cohort as defined in the present study in Table 2. One can see that there is considerable overlap between the range of “marrying years” for Cohorts and Generations 1 and 2; Cohort 3, on the other hand, stands alone with equal ranges and sample size for year of marriage. By defining cohorts in the preceding manner, more equitable sample sizes and a reduction in variability in the range of marital duration was accomplished for purposes of analysis.

Table 2. Range and Sample Size for Cohort vs. Generation.

	Cohort 1	Gen. 1	Cohort 2	Gen. 2	Cohort 3	Gen. 3
Year of 1st marriage	1926-44	1926-36	1945-54	1938-55	1964-84	1964-84
Range in years	18	10	9	17	20	20
Year of birth	1902-26	1902-16	1917-35	1914-35	1945-55	1945-55
Range in years	24	14	18	11	10	10
N	42	24	161	179	140	140

### Variables

Dependent variable. The measure used for the dependent variable marital quality—the Gilford Bengtson Marital Satisfaction Scale (GBMSS) (Gilford & Bengtson, 1979)—is based on the premise that a two-dimensional, positive and negative conceptualization of marital quality enables a more detailed description of marital quality than a one-dimensional measure (Bradbury, Fincham, & Beach, 2000; Fincham & Linfield, 1997). Marital quality was operationalized by asking respondents: "Here are some things spouses or partners do when they are together. For each item, check the box that best describes how often you do these thing when you are with your spouse or partner: (1) hardly ever, (2) not usually but sometimes, (3) fairly often, (4) quite frequently, or (5) almost always." Five items referring to positive interaction and five to negative sentiment were presented in a random format (see Table 3). Scores for each factor of the marital satisfaction scale were computed by averaging the completed items

on each scale. High scores on positive and low scores on negative marital quality indicate higher quality marriages (i.e., more positivity and less negativity, reflecting "higher quality" marriages).

Table 3. Indicators for Positive and Negative Marital Quality.

Positive Marital Quality	Negative Marital Quality
"You calmly discuss something together."	"One of you is sarcastic."
"You work together on something (dishes, yardwork, hobbies, etc.)"	"One of you refuses to talk in a normal manner."
"You laugh together."	"You disagree about something important."
"You have a stimulating exchange of ideas."	"You become critical and belittling."
"You have a good time together."	"You become angry."

Item-to-item analysis and factor analysis of the 10 marital satisfaction items have demonstrated the internal consistency of the two-dimensional conceptualization (Gilford & Bengtson, 1979). Reliabilities, reported by Feng, Girarrusso, Bengtson, and Frye (1999), for the positive interaction and negative sentiment scales were .87 and .84, respectively. According to Burgess (1995/1998), the GBMSS score is highly correlated to an overall single measure of marital happiness (.77). In the present study, Cronbach's alpha reliability coefficients for positive marital quality for each of the six occasions of measurement were .86, .64, .86, .62, .85, .86; for negative marital quality, reliability coefficients were .82, .80, .84, .87, .84, and .84.

The means for positive and negative marital quality are given in Tables 4 and 5, respectively, for each cohort across all six waves. In general, the means of positive and negative marital quality, reflecting average levels of marital quality, remained fairly stable, showing small fluctuations over the 26 years.

Independent variables. To predict the effects of duration and cohort membership on rates of change in marital quality over the 26 years of the study, both time-invariant and time-varying variables were examined. The single time-varying variable is survey year of measurement, corresponding to 1971, 1985, 1988, 1991, 1994, and 1997 (Time 1,

Time 2, . . . , Time 6). Time-invariant variables include gender (coded 0 for male, 1 for female), education (coded 0 for high school or less, 1 for college or more), and cohort (based upon year of marriage and delineated by historical period as discussed above).

Table 4. Mean Positive Marital Quality for Separate Cohorts, Times 1-6.

Cohort	Time of Measurement (Survey Year)					
	1971	1985	1988	1991	1994	1997
<b>Cohort 1</b>						
M	3.88	3.72	3.67	3.81	3.80	3.64
s.d.	.89	.86	.97	.86	.95	.95
<b>Cohort 2</b>						
M	3.80	3.51	3.47	3.53	3.62	3.66
s.d.	.84	1.00	1.03	1.02	.96	.93
<b>Cohort 3</b>						
M	4.37	3.81	3.59	3.67	3.59	3.45
s.d.	.60	.79	1.00	.99	.96	1.16

Table 5. Mean Negative Marital Quality for Separate Cohorts, Times 1-6.

Cohort	Time of Measurement (Survey Year)					
	1971	1985	1988	1991	1994	1997
<b>Cohort 1</b>						
M	1.84	1.64	1.81	1.63	1.62	1.60
s.d.	.40	.44	.57	.52	.45	.48
<b>Cohort 2</b>						
M	1.88	1.88	1.87	1.89	1.81	1.82
s.d.	.57	.66	.70	.78	.68	.66
<b>Cohort 3</b>						
M	1.80	1.60	1.77	1.87	1.86	1.87
s.d.	.44	.32	.62	.49	.70	.67

### Data Analysis

The essential purpose of hierarchical linear modeling (HLM) is to directly examine individual growth—in this case, changes in marital quality for an individual—and group heterogeneity—in this case, cohort differences.

Several advantages exist for using HLM. First, HLM can incorporate terms for the time variable that are linear, quadratic, or cubic; therefore, one can test for a linear decline or curvilinear trajectory. HLM is well suited to more than two waves of data; in fact, estimation of parameters improves as the number of time waves increases, as does direct estimation of the reliability of growth parameters (Francis, Fletcher, Stuebing, Davidson, & Thompson, 1991). In addition, one can measure individual change for different durations and at a different number of times, i.e., no need for a uniform, or balanced, collection design. Another major problem with longitudinal designs and analyses is how to handle missing data. In HLM, one can use all of the data for a given subject even if a subject was not measured at all occasions (provided that the subject has at least enough data to estimate individual growth parameters). This allows individual growth curves to be fitted to all the data that are present (Rogosa & Saner, 1995; Silverstein & Long, 1998).

HLM is a multilevel modeling technique. The data structure of interest, in the univariate, repeated measures case, is a single response variable measured at each occasion for each individual. The model is considered to have a hierarchical structure at Level 1 (the repeated measures model), because occasions of measurement are nested within subjects. Each person's development is represented by an individual growth trajectory that depends on a unique set of parameters (i.e., intercept and slope), a distinct average trajectory for each individual. The parameters generated in the Level 1 analysis become outcomes to be modeled as a function of explanatory variables—such as cohort membership, gender, or highest educational level attained—in the Level 2 person-level model.

## CHAPTER IV

### RESULTS

Two hierarchical linear modeling analyses were conducted. In the first analysis, all three cohorts were analyzed separately using a Level 1 unconditional model in which time was the only predictor. The model included both linear and quadratic effects, allowing for a curvilinear trajectory of marital quality over time to be specified. In the second analysis, a Level 1 analysis was performed for the full sample, all three cohorts combined, followed by a Level 2 analysis specifying cohort membership, gender, and education as predictors of marital quality trajectories over time. Positive and negative marital quality were specified in separate models.

#### Hierarchical Linear Model

Centering the time variable. Before specifying the models for change in marital quality in this analysis, it is necessary to explain how the time variable for the six occasions of measurement was defined. Oftentimes, the time variable, especially in balanced designs, is the deviation from the first occasion of measurement. Other choices for the location of the time variable include using deviation scores from the mean or from the midpoint of the study. According to Raudenbush and Bryk (2002), "Centering 'in the middle,' will have the desirable effects of defining  $\pi_{1i}$  [the slope] not only as the rate of growth at [midpoint] but also as the average rate of growth during the data collection period, or 'average velocity' " (p. 182).

In this study, the data represented an unbalanced design: 14 years separate Time 1 from Time 2, while three years separate each of the remaining four data collection periods. Using the approximate midpoint of the study as 14 years, Time 2 (1985) was designated as the "initial status" for the individual growth curves, resulting in coding time in the models as -14, 0, 3, 6, 9, 12, corresponding to year of survey 1971, 1985, 1988, 1991, 1994, 1997, respectively. By coding Time 2 as the initial status,  $\pi_{0i}$  was interpreted as the true marital quality at Time 2, and  $\pi_{1i}$  as the rate of growth at Time 2.

Interpretation of  $\pi_{2i}$ , the curvature or acceleration in each growth trajectory, does not depend on centering.

Model to test duration effects, separate cohorts. At Level 1, a simple model incorporated both a linear and quadratic term for individual change in each of the three cohorts. The unconditional model, containing no predictors other than time, becomes

$$Y_{it} = \pi_{0i} + \pi_{1i} (\text{linear})_{it} + \pi_{2i} (\text{quadratic})^2_{it} + e_{it}, \quad (\text{Equation 1})$$

where  $Y_{it}$  is the observed marital quality score for subject  $i$  at time  $t$  ( $i = 1, \dots, 42$  for Cohort 1;  $i = 1, \dots, 161$  for Cohort 2;  $i = 1, \dots, 140$  for Cohort 3,  $t = 1, \dots, 6$ );  $\text{linear}_{it}$  is the time variable centered by its midpoint (i.e., 14 years) between Time 1 and Time 6 of subject  $i$ ;  $\pi_{0i}$  is the intercept of subject  $i$ , so that, given the coding of time,  $\pi_{0i}$  is the expected marital quality of subject  $i$  at Time 2;  $\pi_{1i}$  is the expected linear rate of change in marital quality for subject  $i$  at Time 2;  $\pi_{2i}$  is the quadratic term representing the rate of acceleration/deceleration in marital quality for subject  $i$ ; and  $e_{it}$  is the random within-subject error of prediction for subject  $i$  at time  $t$ , conditional on that subject's change parameters,  $\pi_{0i}$ ,  $\pi_{1i}$ , and  $\pi_{2i}$ . The random effects at Level 1 (within subject errors) were assumed mutually independent and normally distributed with a mean of zero, and a variance of  $\sigma^2$ .

Results. The fixed effects results provided information about the average change across all subjects within each cohort. Examining first the fixed effects for positive marital quality (see Table 6), the average positive marital quality at Time 2 for Cohort 1 was 3.841, Cohort 2 was 3.677, and Cohort 3 was 3.624. For Cohort 1, neither the linear ( $\beta_1 = -0.005$ ,  $t = -0.65$ ) nor quadratic ( $\beta_2 = 0.000$ ,  $t = 0.38$ ) mean growth rate was significant, although positive marital quality did tend to decline over the study period. Cohort 2's linear term for positive marital quality was not significant ( $\beta_1 = -0.001$ ,  $t = -0.026$ ), although the quadratic effect was significant ( $\beta_2 = 0.001$ ,  $t = 3.70$ ). Cohort 3 experienced both a significant linear decrease ( $\beta_1 = -0.025$ ,  $t = -5.73$ ) and a significant quadratic trend ( $\beta_2 = 0.001$ ,  $t = 2.14$ ) in positive marital quality.

For negative marital quality (see Table 7), the mean initial statuses (true scores at Time 2) for Cohorts 1, 2, and 3 were 1.631, 1.810, and 1.874, respectively. Negative marital quality appeared to decline over time for Cohorts 1 and 2, but none of the linear or quadratic terms were significant ( $\beta_1 = -0.004$ ,  $t = -0.76$ ,  $\beta_2 = 0.000$ ,  $t = .55$  for Cohort 1;  $\beta_1 = -0.002$ ,  $t = -0.778$ ;  $\beta_2 = -0.000$ ,  $t = -0.077$  for Cohort 2). The only significant time effect for negative marital quality for Cohort 3 was the quadratic term ( $\beta_2 = 0.001$ ,  $t = 2.16$ ).

Figures 1 and 2 show the plotted trajectories for positive and negative scales for each of the three cohorts. The intercept for positive marital quality at Time 2 was highest for Cohort 1, and lowest for Cohort 3. As for rate of change, Cohort 1 exhibited a nonsignificant decline in positive marital quality. The quadratic effect of time on positive marital quality for Cohort 2 exhibited a significant reversal from declining to increasing marital quality from Time 2. Significant linear and quadratic terms for Cohort 3 indicated a pattern of positive marital quality declining over the early years of marriage, but slowing down and gradually flattening from 1994 to 1997.

Negative marital quality for the separate cohorts is plotted in Figure 2. At Time 2, intercepts for average negative marital quality were highest for Cohort 1 and lowest for Cohort 3. As for the linear rate of change, Cohort 1 and Cohort 2 exhibited nonsignificant linear declines in negative marital quality from 1985 through 1997. A significant quadratic effect of time for Cohort 3 translated graphically into a linear decline, that at Time 2, began to slowly reverse, showing a shallow convex or u-shaped curve across the study period.

Including the few Cohort 3 participants ( $N = 26$ ) who were married at Time 1 may have possibly distorted the results of the unconditional model for Cohort 3 (i.e., the majority of Cohort 3 participants [ $N = 114$ ] were not included until Time 2). Separate analyses were estimated using only Cohort 3 participants whose first measurement was obtained at Time 2. Coding for Cohort 3 from Time 2 to Time 6 was centered at Time 2 for each of the balanced five waves as 0, 1, 2, 3, and 4. The intercepts, linear and quadratic coefficients for positive marital quality in this supplementary analysis were:  $\beta_0 = 2.603$ ,  $t = 62.73$ ;  $\beta_1 = -0.050$ ,  $t = -5.73$ ; and  $\beta_2 = 0.001$ ,  $t = 2.14$ ; for negative marital

Table 6. Growth Model for Positive Marital Quality, Separate Cohorts.

Cohort	Estimation of fixed effects			Estimation of random effects		
	B	s.e.	t-ratio	s.d.	variance	chi sq.
<b>Cohort 1</b>						
Intercept	3.841	0.111	34.50***	0.696	0.485	579.08***
Linear change	-0.005	0.008	-0.65	0.035	0.001	107.44***
Quadratic change	0.000	0.001	0.38	0.003	0.000	83.06***
Error variance				0.406	0.165	
<b>Cohort 2</b>						
Intercept	3.677	0.062	59.06***	0.764	0.583	2200.64***
Linear change	-0.001	0.003	-0.25	0.026	0.001	302.64***
Quadratic change	0.001	0.000	3.70***	0.002	0.000	245.36***
Error variance				0.457	0.208	
<b>Cohort 3</b>						
Intercept	3.624	0.058	62.73***	0.648	0.420	763.33***
Linear change	-0.025	0.004	-5.73***	0.030	0.001	200.53***
Quadratic change	0.001	0.000	2.14*	0.002	0.000	164.57
Error variance				0.473	0.224	

\* p < .05, \*\* p < .01, \*\*\* p < .001.

Table 7. Growth Model for Negative Marital Quality, Separate Cohorts.

Cohort	Estimation of fixed effects			Estimation of random effects		
	B	s.e.	t-ratio	s.d.	variance	chi sq.
<b>Cohort 1</b>						
Intercept	1.631	0.063	25.94***	0.377	0.142	282.90***
Linear change	-0.004	0.005	-0.76	0.019	0.000	72.53**
Quadratic change	0.000	0.000	0.55	0.002	0.000	58.72**
Error variance				0.340	0.115	
<b>Cohort 2</b>						
Intercept	1.810	0.046	39.74***	0.547	0.305	1630.03***
Linear change	-0.002	0.002	-0.78	0.019	0.000	291.37***
Quadratic change	-0.000	0.000	-0.08	0.002	0.000	237.66**
Error variance				0.380	0.144	
<b>Cohort 3</b>						
Intercept	1.874	0.043	43.62***	0.477	0.228	575.71***
Linear change	0.002	0.004	0.55	0.026	0.001	211.26***
Quadratic change	0.001	0.000	2.16*	0.002	0.000	208.16***
Error variance				0.372	0.138	

\* p < .05, \*\* p < .01, \*\*\* p < .001.

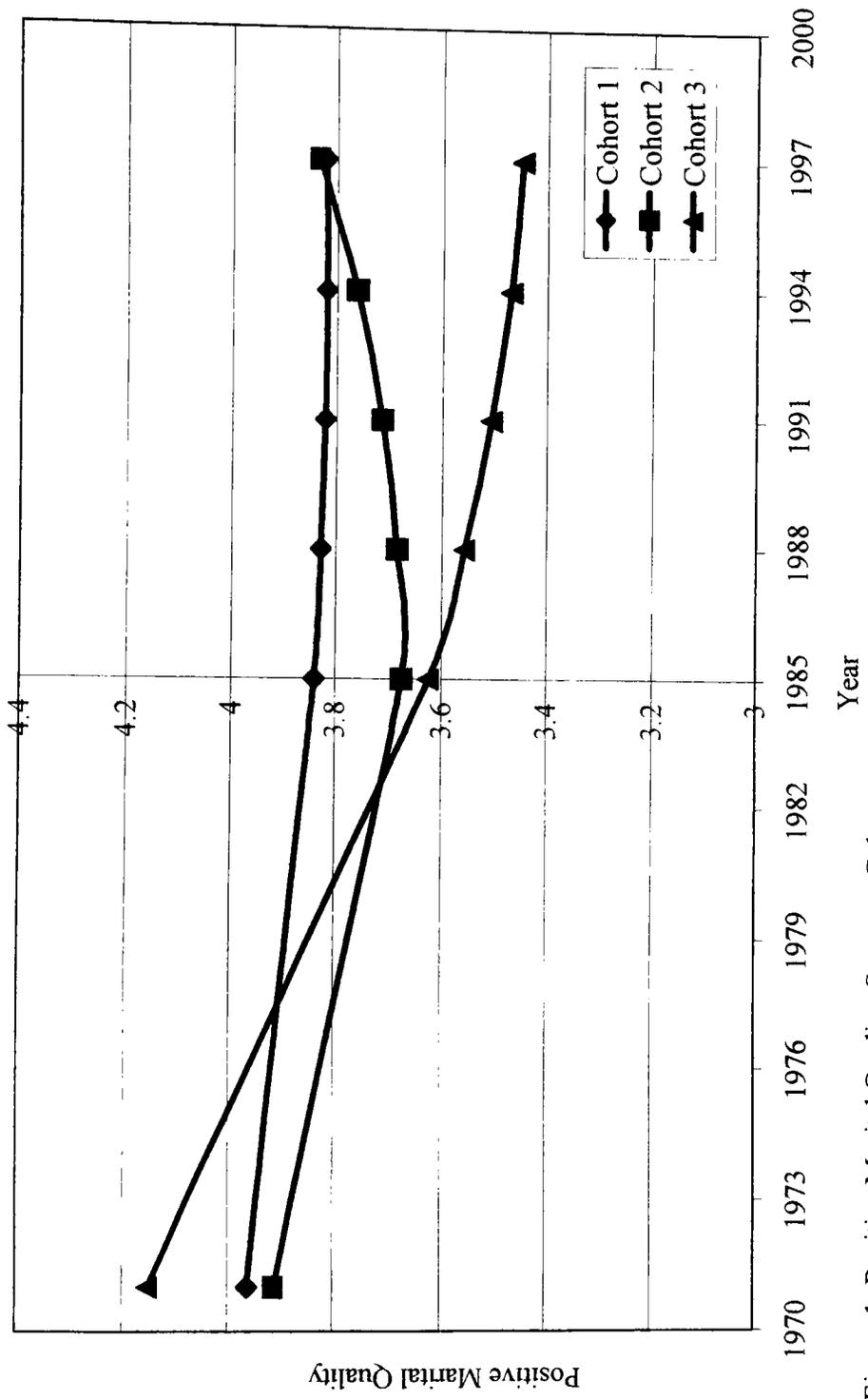


Figure 1. Positive Marital Quality, Separate Cohorts.

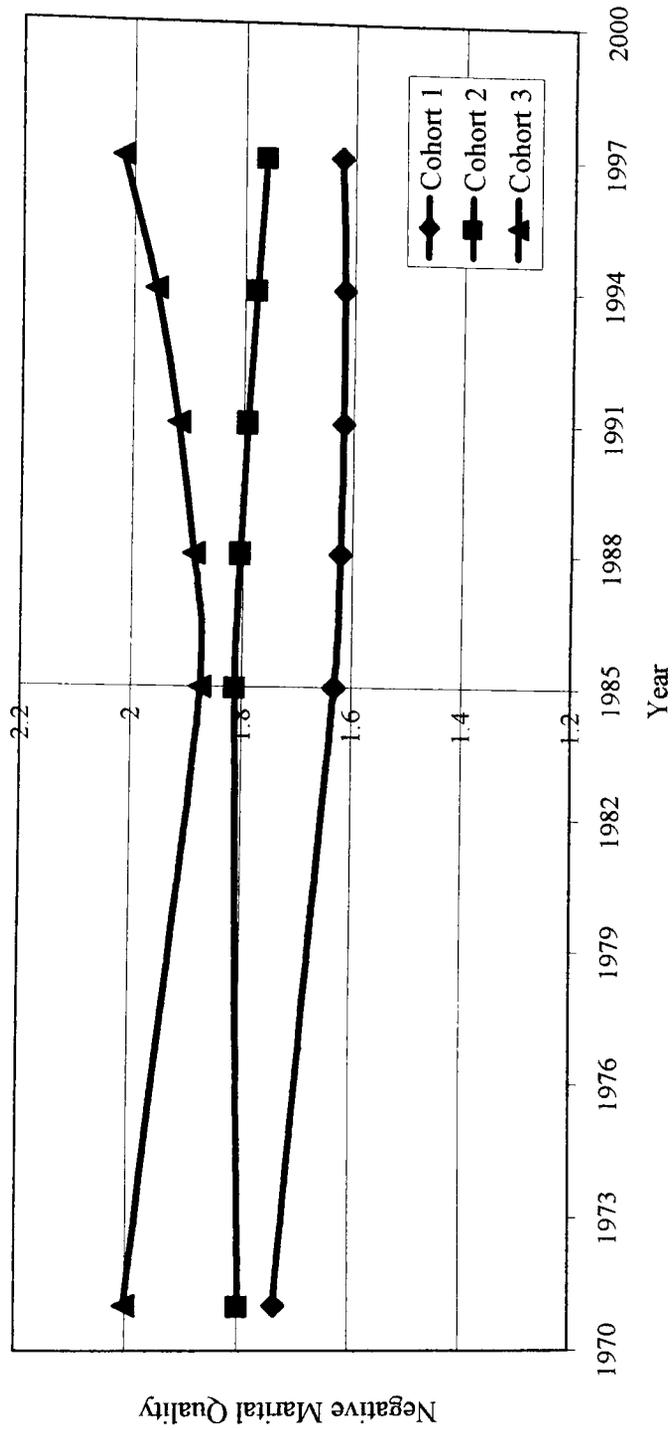


Figure 2. Negative Marital Quality, Separate Cohorts.

quality,  $\beta_0 = 1.878$ ,  $t = 36.72$ ;  $\beta_1 = 0.047$ ,  $t = 3.062$ ; and  $\beta_2 = -0.003$ ,  $t = -2.121$ .

Comparing these results with those in Tables 6 and 7 for Cohort 3, it was concluded that including Cohort 3 participants with Time 1 marital quality data would not appreciably alter the results. Therefore, all 140 Cohort 3 participants were included in the unconditional model for separate cohorts and the subsequent model that combined data for all three cohorts.

The variance components in the model provided information about individual differences in change. With one exception—insufficient variability in the quadratic growth function for positive marital quality for Cohort 3—all estimated variance components in Tables 6 and 7 were significant, indicating sufficient intersubject heterogeneity in intercepts and rates of change from Times 1 to 6 in both positive and negative marital quality in each of the three cohorts. Rather than identifying covariates for each of the separate cohorts, a second conditional model to specifically test effects of cohort membership on positive and marital quality was specified and included subjects from all three cohorts combined.

Model to test cohort effects for all three cohorts combined. First, a Level 1 unconditional model testing for effects of time for all three cohorts combined was specified. At Level 2, a conditional model incorporated cohort membership, gender, and education as predictors of the change in positive and negative marital quality across time for the pooled data of all three cohorts:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{Cohort } 1)_i + \beta_{02}(\text{Cohort } 2)_i + \beta_{03}(\text{Gender})_i + \beta_{04}(\text{Education})_i + u_{0i}$$

(Equation 2)

$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{Cohort } 1)_i + \beta_{12}(\text{Cohort } 2)_i + \beta_{13}(\text{Gender})_i + \beta_{14}(\text{Education})_i + u_{1i}$$

(Equation 3)

$$\pi_{2i} = \beta_{20} + \beta_{21}(\text{Cohort } 1)_i + \beta_{22}(\text{Cohort } 2)_i + \beta_{23}(\text{Gender})_i + \beta_{24}(\text{Education})_i + u_{2i}$$

(Equation 4)

where  $(\text{Cohort } 1)_i = 0$  if person  $i$  belongs to Cohort 3 (here Cohort 3 is the reference group),  $(\text{Cohort } 1)_i = 1$  if not;  $(\text{Cohort } 2)_i = 0$  if person  $i$  belongs to Cohort 3,  $(\text{Cohort } 2)_i = 1$  if not;  $(\text{Gender})_i = 0$  if person  $i$  is male,  $(\text{Gender})_i = 1$  if female;  $(\text{Education})_i = 0$  if person  $i$  has attained a high school or less education,  $(\text{Education})_i = 1$  if person  $i$  has

attained some college or technical training or more;  $B_{0i}$  is the mean difference in marital quality between persons in Cohorts 1 and 2, on the one hand, and persons in Cohort 3, on the other, in 1985;  $B_{1i}$  is the mean difference in rate of change between person in Cohorts 1 and 2 and persons in Cohort 3;  $B_{2i}$  is the mean difference in rate of acceleration between persons in Cohorts 1 and 2 and persons in Cohort 3; and  $u_{0i}$ ,  $u_{1i}$ , and  $u_{2i}$  are random effects of person  $i$  on mean marital quality in 1985 and the linear rate of change and quadratic rate of acceleration in marital quality, controlling for cohort, gender, and education differences.

Results. Tables 8 and 9 present results of the Level 2 conditional growth model for positive and negative marital quality. Of primary interest was the effect of cohort membership on the intercept for positive marital quality at Time 2. Neither Cohorts 1 nor 2 differed significantly from Cohort 3, although both cohorts exhibited less positive marital quality than Cohort 3. For the linear rate of change in positive marital quality at Time 2, Cohort 1 ( $\beta_0 = -.025$ ,  $t = -2.902$ ) and Cohort 2 ( $\beta_0 = -.027$ ,  $t = -4.739$ ) differed significantly from Cohort 3. No significant quadratic effects differentiated Cohorts 1 and 2 from Cohort 3.

For negative marital quality at Time 2, only the intercept for Cohort 1 ( $\beta_0 = 0.256$ ,  $t = 2.924$ ) was significantly different from Cohort 3 ( $\beta_0 = 1.664$ ,  $t = 15.414$ ). No linear effects for negative marital quality were significant, but the quadratic effect for Cohort 2 ( $\beta_2 = 0.001$ ,  $t = 2.534$ ) was significantly different from Cohort 3.

Gender and education effects on marital quality. Bernard's (1972) seminal work on "his and her" marriage suggests that men and women have different expectations and experiences in marriage. Raudenbush, Brennan, and Barnett (1995) found that husbands' and wives' reports of marital quality were in moderate agreement ( $r = .55$ ) as were rates of change ( $r = .48$ ), as would be expected due to the interdependence of scores. However, when the mean trajectories of women and men for perceived quality of marriage were compared, it was found that women's perceived quality of marriages declined, but not so for men, and that the women's rate of change was significantly more negative than that of men. In the present study (see Tables 8 and 9), although gender did not affect the intercepts or quadratic rates of change for either positive or negative marital quality,

Table 8. Conditional Growth Model for Positive Marital Quality, Combined Cohorts.

	Estimation of fixed effects			Estimation of random effects		
	$\beta$	s.e.	t-ratio	s.d.	variance	chi sq.
Intercept	3.758	0.167	22.448***	0.715	0.511	4331.33***
Cohort 1	-0.161	0.142	-1.131			
Cohort 2	-0.061	0.088	-0.697			
Gender	-0.025	0.083	-0.302			
Education	0.105	0.123	0.855			
Linear change	0.029	0.011	2.713**	0.029	0.001	577.07***
Cohort 1	-0.025	0.009	-2.902**			
Cohort 2	-0.027	0.006	-4.739***			
Gender	-0.014	0.005	-2.819**			
Education	0.004	0.006	0.663			
Quad. change	0.001	0.001	1.415	0.002	0.000	463.12***
Cohort 1	0.001	0.001	0.894			
Cohort 2	-0.000	0.001	-0.326			
Gender	-0.001	0.000	-1.564			
Education	-0.001	0.001	-1.126			
error variance				0.460	0.211	

\* p < .05, \*\* p < .01, \*\*\* p < .001.

Table 9. Conditional Growth Model for Negative Marital Quality, Combined Cohorts.

	Estimation of fixed effects			Estimation of random effects		
	$\beta$	s.e.	t-ratio	s.d.	variance	chi sq.
Intercept	1.664	0.108	15.414***	0.514	0.264	3211.62***
Cohort 1	0.256	0.088	2.924**			
Cohort 2	0.080	0.066	1.219			
Gender	-0.030	0.060	-0.504			
Education	-0.111	0.082	-1.347			
Linear change	-0.014	0.008	-1.712*	0.020	0.000	540.865***
Cohort 1	0.005	0.006	0.719			
Cohort 2	0.003	0.005	0.713			
Gender	0.011	0.004	3.083**			
Education	-0.000	0.005	-0.031			
Quad. change	-0.001	0.001	-1.478	0.002	0.000	481.896***
Cohort 1	0.001	0.001	1.278			
Cohort 2	0.001	0.000	2.534*			
Gender	0.991	0.000	1.795			
Education	-0.000	0.001	-0.337			
error variance				0.144	0.379	

\* p < .05, \*\* p < .01, \*\*\* p < .001.

gender did significantly affect the linear rate of change. Females ( $\beta_1 = -0.014$ ,  $t = -2.819$ ) had a significant negative rate of linear change on positive marital quality. For negative marital quality, the linear change in marital quality was positive and significant for females ( $\beta_1 = 0.011$ ,  $t = 3.083$ ). No quadratic effects were significant for either positive or negative marital quality. The plotted trajectories for positive and negative marital quality (see Figures 3 and 4) showed that marital quality for females was declining at Time 2, while males' marital quality was increasing for the entire sample. There were no significant effects for education in the level of, the rate of change for, or the rate of acceleration for positive or negative marital quality (see Tables 8 and 9). All estimated variance components in Tables 8 and 9 were significant, indicating intersubject heterogeneity in intercepts and rates of change from Times 1 to 6 in both positive and negative marital quality. These results indicate the possibility one might find other covariates besides the ones in this study to explain the variability in this sample.

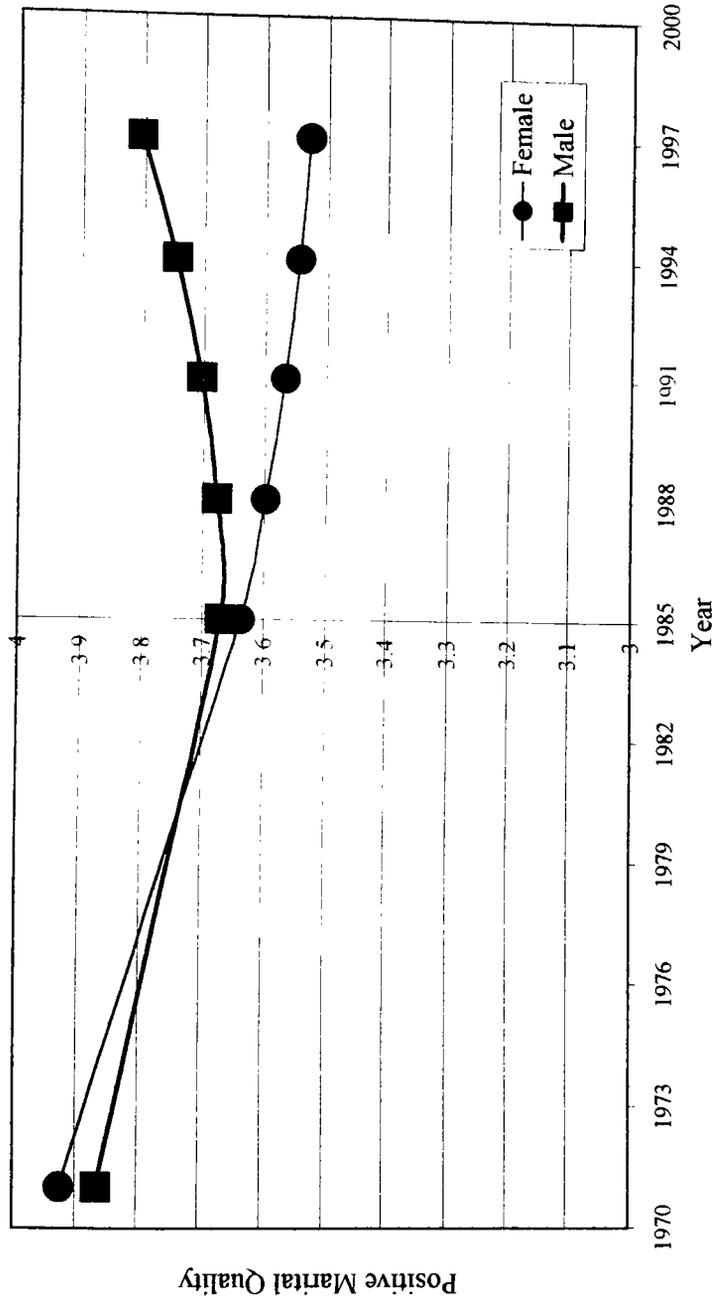


Figure 3. Trajectories for Positive Marital Quality by Gender, Combined Cohorts.

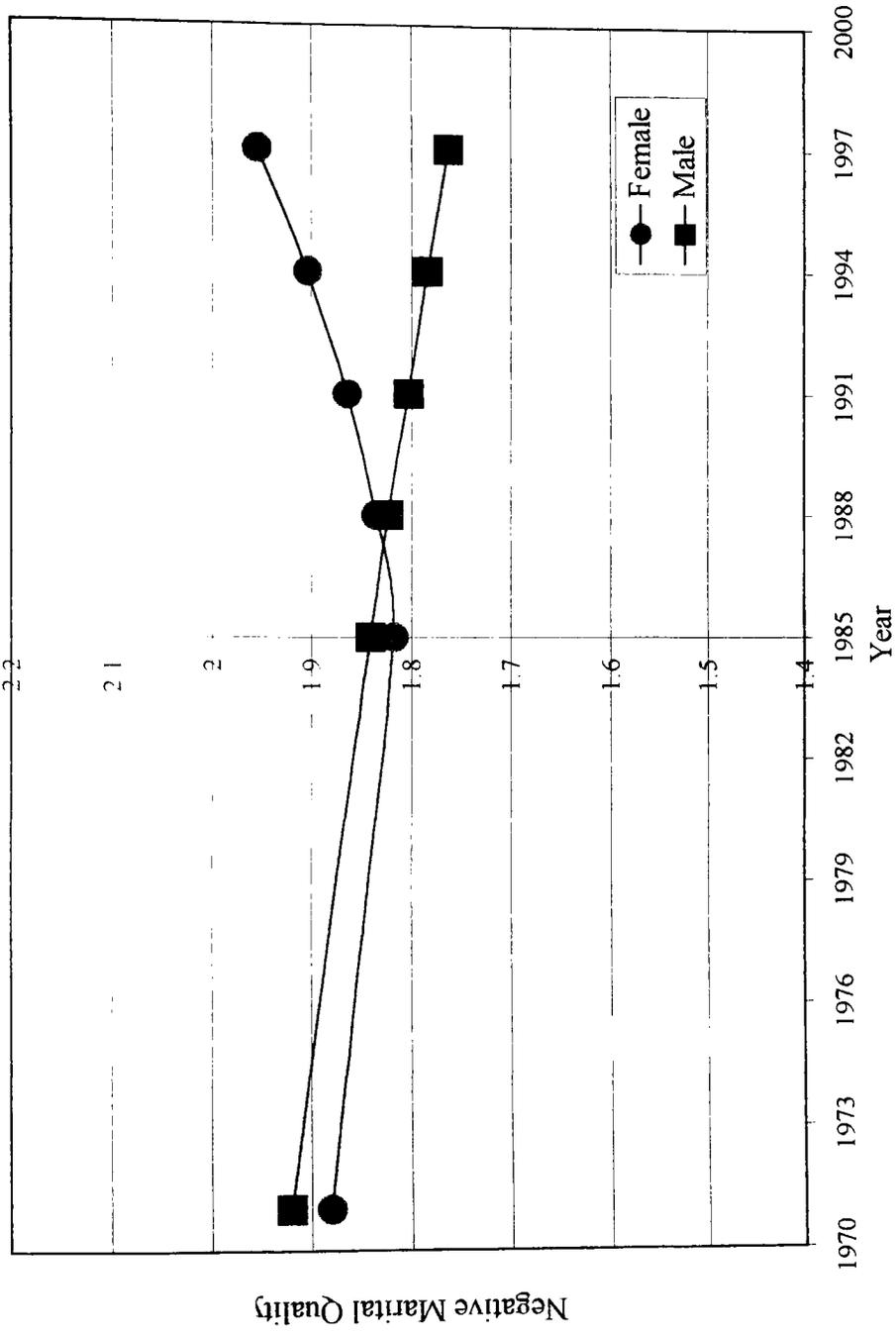


Figure 4: Trajectories for Negative Marital Quality by Gender, Combined Cohorts.

## CHAPTER V

### DISCUSSION

A vast literature on marital relations demonstrates that marital quality is an undoubtedly complex phenomenon. The progression of time, or duration effects, is one variable that distinguishes marital quality as developmental. Researchers have debated for years over how to best describe the rise and fall of marital quality over the course of marriage. The controversy often rests upon whether the sampling design is cross-sectional or longitudinal and what kind of data analysis best captures variability across time within individuals and between cohorts. Cross-sectional studies (e.g., Gilford & Bengtson, 1979; Gilford, 1984; Orbuch et al., 1996) generally support a curvilinear model of marital quality and evidence of cohort effects; longitudinal studies (e.g., Johnson, Amoloza, & Booth, 1992; Kelly & Conley, 1987; Vaillant & Vaillant, 1993; VanLandingham, Johnson, & Amato, 2001) support a linear decline, and an absence of cohort effects. The consensus among marital researchers calls for data collected longitudinally for extended durations to describe change in marital quality across time. One cannot, however, apply the same data analytic techniques used for cross-sectional data to longitudinal data. Most techniques applied to longitudinal data fail to expand our knowledge of the course of marital quality beyond the general pattern of group mean increases or declines. Even when researchers have access to longitudinal data collected on persons for longer durations, correlations and multiple regression are the most frequently used techniques, limiting such analyses to only two waves of data (Karney & Bradbury, 1997). The present study responds to these issues for examining change in marital quality: namely access to longitudinal data, inclusion of long-term marriages and different cohorts, and utilization of statistical analysis techniques suitable for analyzing change over time.

First and foremost, the present study had access to longitudinal data from the Longitudinal Study of Generations (LSG). The LSG has collected, and continues to collect, measures of marital quality for four generations of families for more than a quarter of a century, a longer period of time than most comparable studies. Since

extensive marital research has concentrated on the early years of marriage, longitudinal data for marriages from the third through the sixth decades can help fill out the picture. Upon entry into the study, Cohort 1 was roughly in the fourth decade of marriage, Cohort 2 in the third decade, and Cohort 3 in the first decade. Because of the generational focus of the LSG, we addressed the confounding of cohort effects by constructing three distinct cohorts that differed not only in marital duration but also by historical era. Each marital cohort was characterized by a particular economic, political, cultural, and social milieu, in which its members initiated, established, and perpetuated their marital unions. The oldest cohort (Cohort 1) married during the Great Depression through World War II. Cohort 2 marriages were products of the economic boom of the post-World War II era, and Cohort 3, the youngest cohort, entered marriage mainly during the social and cultural upheavals of the 1960s and 1970s. The serial arrangement for each cohort's year of marriage and marital duration by cumulative decade and historical period, including survey year of measurement, is depicted in Table 10.

We were also able to address unique information provided by longitudinal data using hierarchical linear modeling (HLM). HLM allows one to trace and model individual trajectories of growth, which are explicitly temporal. An appropriate conceptualization of marital quality is not simply a judgment made by spouses at one point in time but a trajectory—especially its slope or rate of change over time—that reflects fluctuations in marital evaluations over time. In HLM, each individual has his or her own regression slope and constant to estimate the effect of time on marital quality. These parameters can then be treated as new dependent variables to be explained by other background or contextual variables in a between-persons analysis. As Willett, Ayoub, and Robinson (1991) stated, HLM . . . "takes advantage of the full richness of longitudinal data to estimate changes over time much more precisely than has previously been possible. . . a critical (step) if change in family functioning is to be adequately detected and described" (p. 46). A technical advantage of HLM is its ability to take advantage of the unbalanced collection designs and missing data, a distinct problem associated with the collection of longitudinal data over long periods of time.

Table 10. Year of Entry into Marriage, Survey Years, and Marital Duration by Decade for Three Cohorts.

Decade	Decades preceding 1 <sup>st</sup> measurement, 1971			Decades and actual year of measurement during study, 1971-97					
	1935-45	1945-55	1955-65	1965-75	1975-85	1985-95			
Year of measurement				1971	1985	1988	1991	1994	1997
Cohort 1									
Decade of marriage	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>			
Mean duration at 1 <sup>st</sup> measurement in yrs.				M = 37					
Cohort 2									
Decade of marriage		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>			
Mean duration at 1 <sup>st</sup> measurement in yrs.				M = 22					
Cohort 3									
Decade of marriage					1 <sup>st</sup>	2 <sup>nd</sup>			
Mean duration at 1 <sup>st</sup> measurement in yrs.					M = 9				

### Definitive Findings

The most definitive findings from this study concerning duration effects were a replication of a U-curve for marital quality in the middle years for Cohort 2 and of a linear decline in marital quality for the more contemporary, short-term Cohort 3 marriages (see Figures 1 and 2).

More importantly, the present *longitudinal* study replicates the U-shaped curve of marital quality found in previous *cross-sectional* studies for Cohort 2, who began their marriages in the late 1940s and 1950s and by the end of the study period were approaching their 50<sup>th</sup> wedding anniversary. In addition, Cohort 3 had been married approximately 10 years by 1985, and this study corroborates longitudinally the commonly documented linear decline in marital quality in early marriage. For Cohort 3, positive marital quality declines but appears to level off at the end of the study; negative marital quality continues its sharp increase. One might speculate as to how the direction

of these paths for Cohort 3 would extend throughout the years following 1997. Positive marital quality, appearing to flatten out, may either stabilize further (for an unknown period of time) and then decline, or the steady trend could reverse and begin to increase, thus duplicating the U-curve of marital quality. The steep rise in negative marital quality for Cohort 3 during the second decade, on the other hand, appears neither to stabilize or to decline in the short term. Speculation as to whether Cohort 3 will follow an increasing or declining pattern in future marital quality evaluations awaits future empirical research.

The three most common explanations for the U-curve trajectory in marital quality have been the presence of cohort effects, attrition from divorce, or the family developmental theoretical framework. Research that consistently posits that self-reported marital quality for older cohorts surpasses that of more contemporary cohorts (Glenn, 1991; Rogers & Amato, 1997). The rationale for cohort effects is that marriages formed prior to contemporary marriages were socialized into marital roles uniquely defined by a different marital ideology within a particular historical and socioeconomic context. Thus these marriages were constrained by what spouses were permitted to think, say, or do about their marriages, and their self-reports of marital quality may be inflated. Having been married for an exceptional number of years and entering their 80s, this cohort may also constitute a unique group of "marital survivors."

The present study documented significant differences between level of negative marital quality between Cohorts 1 and 3, linear change in positive marital quality between Cohorts 1 and 2 and Cohort 3, and quadratic change in negative marital between Cohort 2 and 3. Although differences do exist among these four parameters, other parameters do not support consistent differences. Comparisons for overlapping durations are also limited. Marital quality data for the first two decades for Cohort 3, but not Cohorts 1 and 2, are available. Although Cohort 1 and 2 do overlap for the fourth and fifth decades, supplementary analysis not reported here indicated that these two cohorts do not differ consistently from each other in levels or trajectories of marital quality. The present study defined cohort based on chronological time and historical and economic events. In order to test true cohort effects, empirical evidence of different marital ideologies and difference socioeconomic environmental influences should be

incorporated as covariates associated with differences in marital quality. Until then, the influence of cohort membership on marital quality is tentative.

Only intact first marriages were included in the study, thus reducing any potential attrition bias from including "distressed" marriages headed for dissolution. It might appear then that the family development explanation and the association between release from stresses associated with parenting and work with increased marital quality becomes a likely candidate to account for the increase in marital quality during mid-marriage as suggested by Orbuch et al. (1996). Again, empirical evidence—the presence and developmental stages of children, occupational and income fluctuations, or measures of parenting or work stress—could allow examination of the effects of family stage on marital quality.

Although theoretical underpinnings of the variability in marital quality across time were not the explicit purview of the present study, one might speculate about other explanations that differentiate marriages of longer and shorter duration. Decline in marital quality during early marriage is often attributed to disillusionment or habituation. As the initial honeymoon period wears off and reality and routine set in. As VanLandingham et al. (2001) posit, "It seems unlikely that processes such as disillusionment or habituation (would) continue for periods ranging up to fifty years" (p. 1334), but researchers have not addressed these processes in later marriages. Although disillusionment and habituation are operative in the early years of marriage, partners who remain together over the long term may maintain a satisfactory bond by adapting their expectations or otherwise coming to terms with their situation. Such a model of accommodation proposes that the impact of problems worked through in marriage fades in time (Huston & Houts, 1998). Older couples may settle for "satisfactory" rather than "satisfying" marriages in later years. Other social psychological processes may influence how spouses evaluate their marriages. According to Veroff, Douvan, Orbuch, and Acitelli (1998), "[Marital] happiness is socially constructed . . . one's role, culture, gender, ethnicity, and class carry with them prescriptions and expectations that help the person establish the dimensions on which happiness should be evaluated and anchors for evaluating each dimension . . . Thus, the individual evaluates his/her marriage according

to the expectations of the groups with whom he/she identifies" (p. 154). This would be especially pertinent for cohorts socialized under different historical marital ideologies, for examples. Spouses' evaluations of marriage may be driven by social comparison or cognitive constancy. For example, spouses in long-term marriages may report greater satisfaction in contrast to the plight of widowed friends. Likewise, the perception that their marriage is happy may be propelled by the duration of marriage; i.e., the longer a couple is married the greater the tendency to report the marriage as being happy.

### Other Strengths and Limitations

The major strengths of this study—access to longitudinal data for long-term intact marriages, the ability to test duration and cohort effects, and utilization of hierarchical linear modeling to detect developmental change across time—have already been discussed. However, it is important to point out other limitations that are inherent to this particular dataset. In regard to the characteristics of the sample, no claim can be made that the individual spouses studied were representative of the general population of married persons; the sample was predominantly white, Protestant, middle class, and highly educated.

Another problem associated with our sample and analyses concerns the presence of individuals varying widely in marital duration. By examining more homogeneous samples, according to length of marriage at initial time of measurement, more consistent findings might emerge. In addition, our analyses erred on the side of being exploratory rather than explanatory, comparing our results against a null model of no change in marital quality. Determining the degree to which competing models would account for the data at hand—particularly with additional explanatory covariates—would promote refutation and disproof with greater potential to advance research on marital quality.

The present study examined developmental trajectories for two separate dimensions of marital quality. Results indicate that different trajectories for positive and negative marital quality exist, which underscores the importance of examining different dimensions of this construct (Markides, Roberts-Jolly, Ray, Hoppe, & Rudkin, 1999). The measure of marital quality—the Gilford Bengtson Marital Satisfaction Scale

(GBMSS)—used in this research is not a standardized measure, which limits the degree to which one can compare or integrate otherwise similar studies. According to Bradbury, Fincham, and Beach (2000), one of the disadvantages of analyses that do not take a trajectory-based view of marital quality is that one cannot fully understand a score assessed at one point in time without reference to earlier or later data points. When combined with a longitudinal research design and data analysis such as HLM, the GBMSS may be heuristic for reflecting fluctuations in marital evaluations over time.

### Directions for Future Research

According to our results, considerable variability remains unaccounted for in predictors of change in marital quality over time. A major task of subsequent research would be to identify correlates of change in marital quality beyond the duration and cohort effects examined here. Complicated human relationships such as marriage comprise a bewildering range of factors that influence relationship quality. In their review, Karney and Bradbury (1995a) report over 200 independent variables that have been investigated as possible predictors of marital quality and stability in their review, any of which could be incorporated into future models of change.

We know little about the nature of historical variation upon which the analysis of cohort effects is based, yet one cannot discount as yet the influence of cohort or historical period on marital quality. When we turn to duration rather than historical processes to account for changes in marital quality, one cannot distinguish between the onset of marital difficulties for some couples or the further deterioration for others without some representation of how and when marriages are changing. Defining cohort based on empirical observations, exploiting information about initial status and trajectories of change through growth modeling, and identifying covariates associated with fluctuations in marital quality will improve our understanding of the process of marital quality across the life course.

As Glenn (1998) stated, "Of course, the results of one study are never definitive" (p. 575). How many additional studies must accumulate to empirically confirm the trajectory of marital quality over the life course, particularly during the latter course of

marriage? Our results indicate—based on longitudinal results—that we are not quite ready to bury the upturn thesis of marital quality at mid-marriage so often found in cross-sectional research. And it would behoove future researchers with access to longitudinal data to incorporate analytical models that are more conducive for detecting and change and variability in marital quality. It may turn out that trajectories characterized as U-shaped or linear decline to describe change in marital quality are inadequate representations of the variability and complexity of marriage.

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