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RUNNING HEAD: Developmental Trajectories of Marital Happiness

Developmental Trajectories of Marital Happiness in Continuously Married Individuals: A  
Group-Based Modeling Approach

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## Abstract

Most contemporary studies of change in marital quality over time have used growth curve modeling to describe continuously declining mean curves. However, there is some evidence that different trajectories of marital quality exist for different sub-populations. Group-based trajectory modeling provides the opportunity to conduct an empirical investigation of the variance in marital quality trajectories. We applied this method to analyze data from continuously married individuals from the Marital Instability over the Life Course Study ( $N = 706$ ). Instead of a single continuously declining trajectory of marital happiness, we found five distinct trajectories. Nearly two-thirds of participants reported high and stable levels of happiness over time and the other one-third showed either a pattern of continuous low happiness, low happiness that subsequently declined, or a curvilinear pattern of high happiness, decline, and recovery. Marital problems, time spent in shared activities, and (to a lesser degree) economic hardship were able to distinguish trajectory group membership. Our results suggest that marital happiness may have multiple distinct trajectories across reasonably diverse populations. Implications for theory, research, and practice are discussed.

Key Words: Developmental Trajectories; Group-Based Modeling; Marital Happiness; Time spent in shared activities, Marital Problems; Perceived Economic Distress

## Developmental Trajectories of Marital Happiness in Continuously Married Individuals: A Group-Based Modeling Approach

Beginning in the 1970s, the prevailing belief was that marital quality followed a curvilinear or U-shaped curve (Anderson, Russell, & Schumm, 1983). Longitudinal research over the last decade, mostly using growth curve modeling, has demonstrated that the curvilinear relationship was a function of cohort effects, not individual change in marital quality across the lifecourse (Glenn, 1998; VanLaningham, Johnson, & Amato, 2001). This research found that marital quality tends to gradually decline over the course of a marriage, with no support for an upturn in the later years (Karney & Bradbury, 1997; VanLaningham et al., 2001). The new consensus in the field is that marriages generally decline in quality over time.

However, the “continuous decline” hypothesis may again be the result of limitations in statistical methods. Specifically, the aim of growth curve modeling is to obtain a single mean curve while statistically accounting for the variance around the curve. If the variance around the mean curve is found to be significant, an analyst may explore different patterns of change over time with descriptive (i.e., non-empirical) analyses, but is unable to merge these patterns into distinct groups and estimate their size in the population. In contrast, group-based trajectory modeling (Nagin, 2005) can determine whether differences in marital quality are better understood as multiple distinct trajectories instead of a single mean curve. In other words, group-based modeling enables us to conduct an empirical investigation of the variance, establish the patterns of the various trajectory groups, determine the size of each group, and examine how they differ from one another. Such research would enhance our theorizing about marriage, spur new research targeted at enhancing our understanding of specific groups, and potentially improve relationship education and therapy programs through more targeted interventions.

There is some evidence that marital quality, may, in fact, follow unique trajectories over time for different groups of people. Weislaus and Field (1988), utilizing extensive interviews with couples over the course of fifty years as well as interviewer ratings of the couples' marriages, found evidence for four patterns of marital quality over a period of 50 years: stable/positive, stable/neutral, stable/negative, and curvilinear. Belsky and Hsieh (1998) followed couples for four years and, using cluster analysis, identified three distinct trajectories of marital quality ("stays good", "good-gets-worse", and "stays bad"). These studies suggest that there are distinct pathways or trajectories of marital quality over the course of marriage for couples who remain together. If so, then there is also much to be learned about these pathways and the factors that can distinguish among them.

One study has recently appeared that investigates the possibility of multiple distinct trajectories of marital happiness. Kamp Dush, Taylor, & Kroeger (2008), utilizing the same data set as this study but considering all individuals rather than only those continuously married, found three distinct trajectories of marital happiness distinguished by low, middle, and high levels of happiness with each approximating a U-shaped curve. However, we have concerns regarding Kamp Dush et al.'s use of *calendar year* as the time metric. As discussed by Nagin (2005), the generalizability of longitudinal research is contingent on a meaningful time metric. In the case of marital happiness, the most meaningful metric would be *years married*, and a less meaningful metric such as *calendar year* could call into question the generalizability of the findings. Kamp Dush et al. (2008) enable the reader to draw conclusions about average levels of marital happiness in 1980 and how it changed over the ensuing 20 years, but it is less clear how marital happiness might change for couples who are married for 5, 10, 20, or 30 or more years.

Thus, this study has two primary aims. First, we wished to determine whether continuously married individuals followed distinct marital happiness trajectories over time using *years married* as the time metric. Second, if unique trajectories were found, this may imply differences in marital processes across the trajectories; thus, we wished to examine whether factors internal (individual behaviors/traits, the sharing of activities) and external to the marriage (perceived economic hardship) were present in differing degrees among the trajectory groups.

#### *Applying Theories of Marriage to Trajectory Analysis*

When investigating the possibility of multiple trajectories of marital happiness across time, theories of marriage can be applied to develop hypotheses about the shape of the trajectories and the factors that can differentiate among them. It should be emphasized that the present study does not directly test any of these theories but instead uses them to inform our hypotheses about the types of marital happiness trajectories that would likely be found and how factors internal and external to the marriage could differ among the trajectory groups.

First, the *enduring dynamics* or *maintenance model* posits that partners develop patterns of behavior and beliefs about the relationship during courtship that carry into marriage (Caughlin & Huston, 2006). Partners who engage in more relationship-enhancing behaviors and who have more positive beliefs about the relationship before marriage are likely to begin marriage with higher levels of marital happiness; these couples are then more likely to maintain these positive interactions and beliefs after marriage and thus maintain a higher level of marital happiness over time. In contrast, partners who engage in less relationship-enhancing behaviors and have less positive beliefs about the relationship are likely to have lower levels of happiness prior to marriage that are likely to remain after marriage. Thus, this model would suggest relatively stable trajectories of marital happiness over time. Following the work of Weishaus and Field

(1988), we hypothesize that *at least* two trajectories of marital happiness will be found for continuously married individuals: high/stable and low/stable.

A second model, the *life events/accommodation model*, assumes that couples will face internal (e.g., infidelity, drug use) and/or external challenges (e.g., economic hardship) that will test the relationship. The way in which the couple “adapts or accommodates” to these challenges influences the future trajectory of their relationship (Caughlin & Huston, 2006). For some couples, these challenges could result in relationship deterioration over time. For example, a couple can enter marriage with a relatively high level of marital happiness, but as a result of stressful financial times, partner infidelity, or hurtful behavior, marital distress can occur, leading to decreasing levels of marital happiness. Therefore, this model would suggest potential declines in marital happiness related to challenging internal and external life events with the possibility that accommodations to these events or the dissipation of these events could be followed by a recovery in marital happiness levels. Building on our previous hypothesis of high/stable and low/stable marital happiness trajectories, this model would imply that there could also be trajectories that start high or low and then either continuously decline or decline and recover.

Empirical support for these models of marital change enables us to further develop our hypotheses by identifying factors that may be related to membership in the various marital happiness trajectory groups. For example, Huston and Houts (1998) found that the amount of conflict prior to marriage was positively related to the amount of conflict after marriage. Given that problems in marriage such as infidelity, spending money foolishly, jealousy, and moodiness have been found to be associated with relationship deterioration (Amato & Rogers, 1997; Previti & Amato, 2004), levels of marital problems may be able to distinguish between higher vs. lower and between stable vs. declining marital happiness trajectory groups, with greater levels of

problems being found among the lower and declining trajectories. Because a reciprocal relationship between marital happiness and amount of time couples' spend in shared activities has been found (White, 1983; Zuo, 1992), the amount of time spent together may also be able to distinguish marital happiness trajectory group membership. Similarly, the link established between economic hardship and marital distress (Conger, Rueter, & Elder, 1999) suggests that economic hardship may be more prevalent among the lower trajectory groups and among groups that are declining in happiness when compared to those that are high and stable.

In conclusion, based on theory and previous empirical research, there is the potential for up to six trajectories of marital happiness to be present in our sample of long-term married individuals: high/stable, low/stable, high/declining, low/declining, high/declining/recovering, and low/declining/recovering. We hypothesize that higher levels of marital problems and economic hardship and lower levels of time together will be found among trajectory groups that are lower in initial marital happiness and/or declining in marital happiness across time.

## Method

### *Data*

This study utilized all six waves of the Marital Instability over the Life Course dataset (Booth, Amato, Rogers & Johnson, 2001). In 1980, a national sample of 2033 married individuals age 18-55 completed a phone interview after being selected using random digit dialing. The original sample was representative of married individuals age 18-55 with respect to age, race, household size, number of children in the household, home ownership, and region when compared to 1980 U.S. census data. Re-interviews were completed in 1983, 1988, 1992, 1997 and 2000 with 78%, 68%, 58%, 52% and 47% of the original sample. Between 1980 and 2000, greater attrition occurred among the youngest and the oldest respondents, African



Americans, men, renters, households where the husband lacked a college education, and residents of the south and metropolitan areas. These differences between the sample and the population were slight, with most categories experiencing attrition of less than 4% (Booth et al.).

### *Sample*

In order to extend previous work on the trajectories of change in long-term marriages, we selected individuals who remained married for the duration of the study. This resulted in a data set of 706 individuals, including 271 men (38.4%) and 435 women (61.6%). The 271 men and 435 women included in our sample represent 33% of the men and 36% of the women from the original sample of 2033 individuals. In 1980, respondents ranged in age from 19 to 55 years old ( $M=35.66$ ), were primarily in their first marriage (90.2%) and European-American (94%), had an average of two children, and had, on average, 14 years of education. Over half (61.4%) indicated that their religious beliefs influenced their daily life either quite a bit or very much.

Our sample does have missing marital happiness data; the level of missingness in the early waves is small (ranging from 1.8% to 2.4%) but is greater in waves 5 (4.1%) and 6 (7.9%). Group-based modeling uses maximum likelihood estimation, which can provide unbiased estimates in the presence of missing data as long as the data is missing at random (MAR). The missingness in waves 5 and 6 was not related to marital happiness in any of the previous waves ( $|t| < 1.5$ , *ns*), indicating that it was not the unhappier individuals who dropped out of the study.

### *Time Metric*

In all longitudinal modeling of individual development, the selection of an appropriate time metric is the key to drawing substantive conclusions (Nagin, 2005). In most cases, time is represented by the age of the individuals in the sample; in this case, because the focus of the study is marital happiness over the duration of a marriage, the appropriate time metric is the

number of years married. Since this dataset contains individuals who have been married for different lengths of time (from 0-30 years at wave 1), we re-scaled the time metric to create a “years married” scale that ranged from zero years for some individuals at wave 1 to more than 50 years for some at wave 6. Since we could not consider each year independently, as that would have given us more than 50 time points, we created a series of 20 “buckets,” each of which represents a range of three years. This provided a manageable number of time points and ensured that each individual would not have more than one measurement in each “bucket.” In general, the buckets contained between 150-400 individuals, although the last 3 buckets (corresponding to > 50 years married) contained very few individuals and thus were not used.

Although we believe this “bucketing” technique to be the optimal solution given the nature of this dataset, it is not without its drawbacks. Most notable is the fact that we are only able to observe a portion of the marital happiness trajectory for each individual, given that the study lasted for 20 years but our time metric covers more than 50 years. In applying the “bucketing” technique, we are, in a sense, equating individuals who were married for 20 years in 1980 with individuals who were not married for 20 years until the year 2000. Although there is no definitive evidence to conclude the degree to which the changes in marriage over the last several decades have affected marital processes, there is some support for the notion that the processes surrounding marital happiness did not change during this time (Amato, Johnson, Booth, & Rogers, 2003). In addition, White and Rogers (2000) studied the movement of women into the workforce in the 1990’s (an important cultural shift) and found that the income generated by women did not have a qualitatively unique impact on marriage. Finally, spreading out a multi-cohort longitudinal sample is often done in longitudinal research to ensure a valid time metric (see Muthén & Muthén, 2000, who spread out a multi-cohort sample based upon

age). The alternative strategy, to use *calendar year* as the time metric as in Kamp Dush et al. (2008), would limit the generalizability of our results as discussed above. Since the aim of our research is to document how marital happiness changes over the course of a marriage, we argue that “bucketing” individuals married for similar amounts of time is the preferable approach.

### *Measures*

*Marital Happiness* was measured using an 11-item summated scale that assesses an individual’s satisfaction with the marriage. It taps both an individual’s global feeling about the marriage (overall happiness, strength of love) and their feeling about aspects of the relationship (amount of understanding received). Individuals responded on a three point Likert scale (1=*very happy*, 2=*pretty happy*, and 3=*not too happy*) and scores were reversed so that higher scores signified greater happiness. The alpha coefficient for reliability in this study ranged from .84 to .90. This variable was chosen as the marital quality variable to model across time because it measures an individual’s global feeling and general satisfaction of the relationship, and this follows recommendations by others to treat marital quality as the global evaluation of one’s marriage (Fincham & Bradbury, 1987).

*Marital Problems* are “the behaviors and traits of either spouse that lead to the perception of problems in the marriage” (Amato et al., 2007, p. 45). The marital problems scale consists of 13 items that represent marital problems because either or both spouses gets angry easily, has feelings that are easily hurt, is jealous, is domineering, is critical, is moody, won’t talk to the other, has had a sexual relationship with someone else, has irritating habits, is not home enough, spends money foolishly, drinks or uses drugs, and has been in trouble with the law. The alpha coefficient for reliability in this study ranged from .73 to .76.

*Time Spent in Shared Activities* consists of five items that assess the degree to which spouses engage in activities together. These include eating the main meal of the day together, shopping, visiting friends, working on projects around the house, and going out for recreation. Individuals responded on a scale of 1 (*never*) to 3 (*almost always*) with higher scores indicating greater levels of time spent in shared activities. The alpha coefficient for reliability in this study ranged from .63 to .64.

*Economic Hardship* has been found to be a better predictor of marital distress and divorce than income (Amato et al., 2007; Conger et al., 1999). Therefore, two questions were combined to create a measure of economic hardship. If individuals reported that they were “not too happy” with their current financial situation or if they reported that their financial situation had grown worse during the previous three years, they received a score of 1, and all other respondents received a score of 0 (Amato et al., 2007). The question regarding current financial situation was not asked in the final wave, so the evaluation of economic hardship at this time point was based solely on the question regarding changes during the previous three years.

### *Analysis Plan*

We employed a group-based semiparametric mixture modeling approach implemented in Proc Traj within SAS (Nagin, 2005). An overview of this approach is provided below.

*Model Fitting.* Our first step was to identify the appropriate number of latent groups and their associated trajectories. We started with a single group and added one group at a time until we achieved optimal model fit as measured by the Bayesian Information Criterion (BIC). Once the optimal number of groups is determined, the trajectories are analyzed individually to identify the proper polynomial equation for each (i.e., linear, quadratic, etc.).

*Model Adequacy.* Nagin (2005) presents several diagnostics that can be used to assess the adequacy of a model. First among these is the average posterior probability, which is calculated for each trajectory group  $j$  ( $AvePP_j$ ). The ideal situation is that each group has an  $AvePP_j = 1$ , which would indicate that each individual belongs in a given group with absolute certainty. However, such certainty rarely exists, and as the certainty declines, the  $AvePP_j$  also declines. Nagin's (2005) criterion is an  $AvePP_j$  of at least 0.7 for all groups. The second diagnostic presented in Nagin (2005) is the Odds of Correct Classification, which is calculated for each group  $j$  ( $OCC_j$ ). If the model has no predictive power, then  $OCC_j$  equals one. As the model becomes more predictive,  $OCC_j$  increases. Nagin's (2005) criterion is an  $OCC_j$  of at least 5.0 for all groups. The final diagnostic compares the probability of group assignment ( $Prob_j$ ), which is calculated for each group  $j$ , with the actual proportion of individuals assigned to each group using the "maximum posterior probability classification rule" ( $Prop_j$ ). If individuals were assigned to each group with absolute certainty (i.e.,  $AvePP_j = 1$  for all groups  $j$ ), then the probability would equal the proportion assigned using the classification rule. As the assignment error decreases, then the gap between the two figures will grow. Nagin (2005) provides no criterion but does point to a difference of 50% in the values as being uncomfortably large.

*Dual Trajectory Analysis.* Dual-trajectory analysis (Jones & Nagin, 2007; Nagin, 2005) is based upon the posterior probabilities of group membership. When two sets of trajectories are brought together (e.g., trajectories of marital happiness and economic hardship), each individual will have two sets of posterior probabilities representing membership in each of the sets of trajectories. Using these probabilities, the joint likelihood of membership in each possible combination of trajectories can be calculated. Thus, dual-trajectory models may reveal that different trajectories of marital happiness (if any are found) show different patterns of

membership in other sets of trajectories. In this study, we will identify trajectories of marital problems, time spent in shared activities, and economic hardship, and use these in a series of dual-trajectory analyses with marital happiness. We used an omnibus Wald test to determine whether the patterns of membership were different across the marital happiness groups. If this test was significant, we then conducted pairwise comparisons among the groups using a Bonferroni corrected  $p$  value (significance was set to  $.05/10$  comparisons =  $.005$ ).

## Results

### *Marital Happiness Trajectories*

Our model fitting indicated a five-group model. The predicted curves are presented in Figure 1. Based upon the criteria outlined above, we have a well-fitting model (see Table 1).

*/\* Figure 1 \*/* */\*Table 1\*/*

The results revealed five distinct marital happiness trajectory groups: High Stable-1 (HS-1); High Stable-2 (HS-2); Curvilinear (CL); Low Stable (LS); and Low Declining (LD). The trajectories are distinct based on both their initial levels of marital happiness and their pattern of change in marital happiness over time. Individuals in the HS-1 ( $M= 30.4$ ), HS-2 ( $M= 31.2$ ), and CL ( $M= 31.9$ ) groups all had initial marital happiness group means that were above the mean for the full sample ( $M= 29.2$ ). These three groups represent 46.1%, 21.5%, and 10.6% of the population, respectively. The two other marital happiness trajectory groups, Low Stable ( $M= 26.3$ ) and Low Declining ( $M= 25.5$ ), had similar levels of initial marital happiness. These groups represented 18.3% and 3.6% of the sample. Although all initial trajectory group means fall between “pretty happy” and “very happy” on the marital happiness scale, Johnson (1993) found that across several national studies 60% to 80% of respondents select the “very happy” category, while less than 3% select the “not too happy” category. Therefore, although the Low Stable and

Low Declining groups can be categorized as “pretty happy” based on the Likert scale, compared to the other three groups they are relatively “unhappy.” Years married in 1980 was not systematically related to trajectory membership,  $F(4,700) = .47, ns$ .

To determine whether the five-group model was an artifact of the “bucketing” approach, we selected a sub-sample of individuals who were married for four years or less in 1980 ( $N=140$ ) and replicated our analysis with the same time metric but without “bucketing.” A five-group solution was once again optimal and our model fit the data well (data available from second author). The trajectory paths from the sub-sample were close to those from the original sample.

#### *Distinguishing Trajectory Group Membership*

The trajectory models for marital problems, time spent in shared activities, and economic hardship are presented in Figure 2, and the dual-trajectory models are presented in Figure 3. According to Figure 3a (looking left to right), the Low Declining (LD) marital happiness trajectory had a high percentage of members with High levels of marital problems (73.4%); in contrast, the Low Stable (LS) marital happiness trajectory had more individuals with the High Decreasing (43.7%) and Low (31.8%) levels of marital problems. This combination of a smaller percentage of individuals with high marital problems and a larger percentage of individuals with low or decreasing marital problems could contribute to the stability of the Low Stable marital happiness trajectory as compared to the Low Declining trajectory. The Curvilinear (CL) marital happiness trajectory had a large number of individuals with Low Increasing levels of marital problems (47.4%), which could, in part, provide an explanation for their decline in marital happiness. Finally, the High Stable-1 (HS-1) and High Stable-2 (HS-2) marital happiness trajectories demonstrated distinctly different profiles of marital problems; nearly all of the members of the HS-2 trajectory had Low (47.2%) or Very Low (48.6%) levels of marital

problems, while the HS-1 trajectory had a number of individuals with High Decreasing levels of problems (31.4%) and a much lower number of individuals with Very Low (11.8%) levels of problems. The omnibus Wald test confirmed that the marital happiness groups were significantly different in terms of their respective levels of marital problems [ $\chi^2(4) = 54.00, p < .001$ ]. When conducting pairwise comparisons among the marital happiness groups, we found that all groups were significantly different from one another according to the  $p < .005$  standard. Additional details on the results of the pairwise comparisons can be obtained from the second author.

A similar pattern appeared when examining the dual trajectory model for marital happiness and time spent in shared activities. The Low Declining (LD) marital happiness trajectory had a very negative profile, with large numbers of individuals with Low (52.8%) or Moderate (34.7%) levels of time spent in shared activities. The Low Stable (LS) marital happiness trajectory had a more positive profile, with a large number of individuals with Moderate levels of time spent in shared activities (68.6%) and very few with High Decreasing levels of time spent in shared activities (2.2%), which could provide some insight into the stability of their happiness trajectory. The Curvilinear (CL) marital happiness trajectory had a substantial number of individuals with High Decreasing levels of time spent in shared activities (28.3%), which could be one factor in explaining their decline in marital happiness. Finally, the High Stable-2 (HS-2) marital happiness trajectory profile was more positive than the High Stable-1 (HS-1) profile, with nearly 80% of individuals having High and Very High levels of time spent in shared activities; in contrast, the HS-1 group was weighted more toward High and Moderate levels of time spent in shared activities. The omnibus Wald test for group differences was again significant [ $\chi^2(4) = 34.90, p < .001$ ]. When conducting the pairwise comparisons, we



found that the only groups that did not differentiate themselves were HS-1 and CL; all other group comparisons were significant according to the  $p < .005$  standard.

When considering perceived economic hardship, the Low Declining (LD) marital happiness trajectory had the highest percentage of individuals that experienced Moderate levels of economic hardship (94.3%), while the Curvilinear (CL) trajectory also had a substantial number of individuals with this level of hardship (60.5%). The Low Stable (LS) marital happiness group, in contrast, had more individuals without notable economic hardship (57.1%). The High Stable-1 (HS-1) and High Stable-2 (HS-2) marital happiness groups demonstrated the most positive profiles, with the HS-2 marital happiness group having a particularly low number of individuals with Moderate economic hardship (12%). The omnibus Wald test for group differences was again significant [ $\chi^2(4) = 27.57, p < .001$ ], but not all groups were significantly different from one another in the pairwise comparisons. The LD group was different when compared to the CL, HS-1, and HS-2 groups, and the LS group was significantly different than the HS-2 group, but all other tests were not significant according to the  $p < .005$  standard.

Overall, the marital happiness trajectories proved to be quite distinct. Setting aside the results related to economic hardship, the LD trajectory had a higher degree of marital problems and low or moderate time spent in shared activities. The LS trajectory had generally low or decreasing levels of problems and more moderate time spent in shared activities. The CL trajectory had generally low but increasing levels of marital problems and decreasing levels of time spent in shared activities. The HS-1 and HS-2 trajectories had generally low levels of marital problems and high degrees of time spent in shared activities, although the HS-1 trajectory possessed somewhat higher levels of problems and less time spent in shared activities.

## Discussion

This study utilized group-based modeling to study the trajectories of marital happiness in continuously married individuals. Five distinct trajectory groups were identified, and the validity of this finding was strengthened by the fact that the trajectories were qualitatively unique and that the model fit the data well. In addition, an analysis of a subsample of couples married only a short time at the start of the study suggested that the existence of five groups was not an artifact of the “bucketing” approach. We also found that marital problems, time spent in shared activities, and, to a lesser degree, economic hardship, were able to distinguish trajectory group membership. Overall, these findings provide a more nuanced understanding of marital happiness over the life course and have important implications for research, theory, and practice.

### *Trajectories of Marital Happiness*

The current study adds to previous research on marital quality over time in several ways. First, we found that nearly two-thirds of continuously married individuals maintain stable, happy marriages over time, and that not all stable, happy marriages were alike. Two distinct trajectory groups were found (i.e., HS-1 and HS-2) that could be distinguished by their degree of marital problems and the amount of time spent in shared activities. These findings contrast with those utilizing growth curve modeling where the mean growth curve evidences a continuous decline (Karney & Bradbury, 1997; VanLaningham et al., 2001). Our results argue for a change in how we think about the course of long-term marriages and how current findings are disseminated in undergraduate texts (e.g., Bradbury & Karney, 2010) and popular media, which generally focus on the continuous decline hypothesis as a general rule for most or all couples. Instead of the extensive research focus on “why are happy marriages difficult to sustain over time” (Karney, 2010), the field can place a greater focus on why some married individuals (e.g., HS-1 and HS-2) are able to maintain relatively high levels of marital happiness over the course of their marriage

(Carroll, Knapp, & Holman, 2005). Possible mechanisms for the maintenance of high levels of marital happiness over time could include minimizing the importance of those aspects of the relationship that are in decline or problematic (Neff & Karney, 2003). Likewise, negatively perceiving past levels of marital satisfaction compared to the present and perceiving more recent improvement in the relationship could also be a way for individuals to maintain high levels of marital happiness (Frye & Karney, 2002). These results also highlight the need for a greater understanding of why some individuals remain in long-term low quality marriages. Expanding our study of constructs related to marriage to include more emphasis on love, affection, forgiveness, and sacrifice (Caughlin & Huston, 2006; Fincham, Stanley, & Beach, 2007) could prove to be fruitful in understanding the contrasting paths of marital happiness.

Second, our results also provide insight into the recent debate about spontaneous remission in marital quality or marital turnarounds (see Beach & Fincham, 2003). The original impetus for the debate around this topic was a report using the first two waves of the National Survey of Families and Households, which found that two-thirds of couples who reported being “unhappy” or “very unhappy” on a one-item scale at time 1 and who stayed married, were “happy” or “very happy” at time 2, five years later. Nearly 80% of the very unhappy group experienced this improvement (Waite et al., 2002; Waite & Luo, 2004). In our study, one of the five groups (the CL group) experienced a decline in their marital happiness and then a partial recovery. Pooling the three trajectories in which there was a period of low marital happiness (i.e., CL, LS, and LD), we can conclude that there was a turnaround for about a third of continuously married individuals. This turnaround occurred only for individuals who had earlier experienced a “happy” marriage, and thus the turnaround could be seen as a partial recovery. For individuals who start with low levels of marital happiness, the chances of a turnaround may be more limited.

One possible explanation is that the experience of having a happy marriage at an earlier point in time may create a shared goal-state for which a couple can strive during tougher times. Couples whose marriages are initially not happy may not believe greater happiness to be a realistic goal or they may simply not be as skilled at negotiating the emotional challenges of marriage.

Third, this study adds to our understanding of long-term low-quality marriages. Utilizing the first four waves of the same dataset as we used, Hawkins and Booth (2005) reported that 16% of continuously married individuals could be characterized as having long-term, low quality marriages (i.e., they scored below the mean on marital happiness for the first four waves of the study). Our finding of two low marital happiness trajectory groups suggests that long-term, low quality marriages are not homogenous. They can be represented by at least two trajectory groups that differ in the pattern of change in their marital happiness over time (i.e., relatively steady vs. a marked decline) and in their patterns of marital problems and shared activities.

Our results also illustrate the strengths and weaknesses of the group-based method. When it comes to more complex situations, such as the links between marital happiness and marital problems or time spent in shared activities, there is some benefit to group-based modeling in terms of quantifying the relationships in empirical terms. At the same time, our results also suggest that group-based modeling may sometimes introduce additional complexity where none is needed. The groups of economic hardship, for example, were not far apart (i.e., the scale on the vertical axis could go to 1.0), and the results from pairwise comparisons suggest that the marital happiness groups were not consistently different in terms of membership in the economic hardship groups. A thoughtful analytical approach leveraging the strengths of a variety of methods may yield the best results.

*Implications for Theory and Practice*

Although there was no intention to test the enduring dynamics model of marriage and the life events/accommodation model of marriage, they were helpful in predicting the potential types of marital happiness trajectories in our sample. However, the results of this study suggest there is a need for theory development and refinement to better explain the life course of marriage. Given that most current models of marital change were developed in order to explain marital decline and divorce, they are less useful for understanding the multiple distinct trajectories of marital happiness found in this study. One potentially fruitful model is Karney and Bradbury's (1995) Vulnerability-Stress-Adaptation Model, which focuses on how enduring vulnerabilities that individuals bring to their marriage, stresses internal and external to their marriage, and couples' adaptive processes (ways of relating and handling individual marital difficulties), all influence marital quality and stability. Therefore, a couple that brought fewer vulnerabilities to the marriage, encountered less stress (or handled the stress better), and more skillfully handled conflict would more likely be able to maintain high levels of marital happiness over time.

If replicated using other longitudinal samples, our findings have implications for relationship education and therapy, which have often assumed two main types of couples—distressed and happy. If there are multiple pathways over time in high happiness and low happiness (or distressed) marriages, then future research could develop specific profiles of the different marital happiness trajectories, thereby creating a more detailed understanding of the risk factors and strengths of these individuals that influence their marital quality. These profiles can then inform targeted educational and therapeutic interventions to strengthen relationships given the specific challenges that these couples face. For example, increasing levels of marital problems and decreasing levels of time spent together appear to be somewhat common in the Curvilinear group, suggesting that a reconciliation of some sort could reverse these patterns. For

the Low Declining group, in contrast, marital problems and time spent together appear to be more stable high and low, respectively, suggesting that more rigorous intervention may be required to reverse deeply entrenched patterns of interaction. These profiles can also guide educators and clinicians in identifying and targeting at-risk couples for intervention programs. In addition, clinicians could more fully consider previous levels of marital happiness in their assessment as a possible indication of the levels of marital happiness that are attainable in the future. For some couples (e.g., the LS or LD groups), a modest goal might be to achieve or maintain a “good enough marriage” (Amato, 2002), while for others (e.g., the CL group) it might mean working to achieve a previously attained level of high marital quality.

#### *Limitations and conclusion*

Several limitations in the current study can inform future research in this area. First, although the data for this study came from a large, national probability sample, attrition created a sample that was predominantly white and contained more females than males, which limits the generalizability of the results. Second, our data were from individuals, not couples, and thus the trajectories reflect the experience of just one spouse. Third, our bucketing technique did not permit us to perform a year-by-year analysis of change in the early years of marriage, a period when change can occur in relatively short intervals. Fourth, there was large variation in marital duration at the beginning of the study. While this enabled us to describe the trajectories of continuously married individuals over extended periods of time, we do not know exactly where individuals began their marriage with respect to marital happiness (other than those newly married in 1980). However, our sub-sample analysis indicated that our “bucketing” technique did not introduce a significant amount of bias, and unpublished findings from a study of newlyweds (Lavner & Bradbury, 2008) yielded a similar trajectory profile to the one reported here.

Our sample suffered from attrition in waves 5 and 6, although this was not systematically related to marital happiness. In a follow-up analysis, however, we did find that the missing data was related to trajectory membership; the Low Declining and Curvilinear trajectories were more likely to be missing data from wave 5,  $\chi^2(4) = 11.65, p < .05$ , and wave 6,  $\chi^2(4) = 8.80, p = .066$ , indicating that it may not have been the individuals who were unhappiest but rather those experiencing the most significant *declines* in relationship quality that were more likely to drop out of the study. As a result, our trajectory model may over-represent the more stable marriages. In addition, our sample of *continuously married* individuals may also contribute to an over-representation of the higher-quality marriages, given that the lower-quality marriages may have failed before the conclusion of the study. Finally, Bauer and Curran (2003) raise the possibility of model misspecification by demonstrating that finite mixture modeling can extract multiple latent groups where there is nothing more than non-normality in the repeated measure. We point out that model checking can often reveal misspecification, and our model checking procedures confirmed that we have a well-fitting model. However, we again suggest caution in interpreting our results until mixture modeling can be applied to other large longitudinal samples.

In conclusion, this study's main finding—that married individuals follow several distinct pathways of marital happiness—adds an important perspective to the study of marital happiness and holds promise for advances in theory, research, and practice. Future research can develop relationship profiles of marital happiness trajectories, creating a more specific understanding of the risk factors and strengths that influence marital quality. At a broader level, the finding that two-thirds of continuously married individuals maintain high levels of marital happiness over time, and that a third of those with low marital happiness recover to some extent, argue against the assumption that, for the average couple, their best days are behind them after the first years.

## References

- Amato, P. R. (2002). Good enough marriages: Parental discord, divorce, and children's well-being. *Virginia Journal of Social Policy & the Law*, 9, 71-94.
- Amato, P. R., Booth, A., Johnson, D. R., & Rogers, S. J. (2007). *Alone together: How marriage in America is changing*. Cambridge, MA: Harvard University Press.
- Amato, P. R., Johnson, D. R., Booth, A., & Rogers, S. J. (2003). Continuity and change in marital quality between 1980 and 2000. *Journal of Marriage and Family*, 65, 1-22.
- Amato, P. R., & Rogers, S. J. (1997). A longitudinal study of marital problems and subsequent divorce. *Journal of Marriage and the Family*, 59, 612-624.
- Anderson, S. A., Russell, C. S., & Schumm, W. R. (1983). Perceived marital quality and family life cycle categories. *Journal of Marriage and the Family*, 45, 127-139.
- Bauer, D. J., & Curran, P. J. (2003). Distributional assumptions of growth mixture models: Implications for overextraction of latent trajectory classes. *Psychological Methods*, 8, 338-363.
- Beach, S. R. H., & Fincham, F. D. (2003, Winter). Spontaneous remission of marital discord: A simmering debate with profound implications for family psychology. *The Family Psychologist*, 19, 11-13.
- Belsky, J., & Hsieh, K. H. (1998). Patterns of marital change during the early childhood years: Parent personality, coparenting, and division-of-labor correlates. *Journal of Family Psychology*, 12, 511-528.
- Booth, A., Amato, P. R., Rogers, S., & Johnson, D. R. (2001). *Marital instability over the life course: Methodology report for sixth wave panel, 2000 cross-section and comparison*. University Park, PA: Pennsylvania State University.



- Booth, A., & Johnson, D. R. (1994). Declining health and marital quality. *Journal of Marriage and the Family*, *56*, 218-223.
- Caughlin, J. P., & Huston, T. L. (2006). The affective structure of marriage. In A. L. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships* (pp. 131-156). New York: Cambridge University Press.
- Conger, R. D., Rueter, M. A., & Elder, G. H. (1999). Couple resilience to economic pressure. *Journal of Personality and Social Psychology*, *76*, 54-71.
- Fincham, F. D., & Bradbury, T. N. (1987). The assessment of marital quality: A reevaluation. *Journal of Marriage and Family*, *49*, 797-809.
- Fincham, F. D., Stanley, S. M., & Beach, S. R. H. (2007). Transformative processes in marriage: An analysis of emerging trends. *Journal of Marriage and Family*, *69*, 275-292.
- Frye, N. E., & Karney, B. R. (2002). Being better or getting better? Social and temporal comparisons as coping mechanisms in close relationships. *Personality and Social Psychology Bulletin*, *28*, 1287-1299.
- Glenn, N. D. (1998). The course of marital success and failure in five American 10-year marriage cohorts. *Journal of Marriage and Family*, *60*, 569-576.
- Hawkins, D. N., & Booth, A. (2005). Unhappily ever after: Effects of long-term, low-quality marriages on well-being. *Social Forces*, *84*, 451-471.
- Huston, T. L., & Houts, R. M. (1998). The psychological infrastructure of courtship and marriage. In T. N. Bradbury (Ed.), *The developmental course of marital dysfunction* (pp. 114-151). Cambridge, England: Cambridge University Press.

- Johnson, D. R. (1993). *Are single-item measures of marital quality valid? The case of marital happiness*. Paper presented at the Theory Construction and Research Methods Workshop, National Council on Family Relations Annual Meeting, Baltimore, MD. Nov. 11, 1993.
- Jones, B. L., & Nagin, D. S. (2007). Advances in group-based trajectory modeling and a SAS procedure for estimating them. *Sociological Methods and Research, 35*, 542-571.
- Kamp Dush, C. M., Taylor, M. G., & Kroeger, R. A. (2008). Marital happiness and psychological well-being across the life course. *Family Relations, 57*, 211-226.
- Karney, B. R. (2010, February). Keeping marriages healthy, and why it's so difficult. *Psychological Science Agenda: Science Briefs*. Retrieved March 17, 2010, from <http://www.apa.org/science/about/psa/2010/02/sci-brief.aspx>
- Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*, 3-34.
- Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology, 72*, 1075-1092.
- Lavner, J., & Bradbury, T. N. (2008, July). *Diverse trajectories of newlyweds' marital satisfaction*. Paper presented at the meeting of the International Association for Relationship Research, Providence, RI.
- Muthén, B. O., & Muthén, L. K. (2000). The development of heavy drinking and alcohol-related problems from ages 18 to 37 in a U.S. national sample. *Journal of Studies on Alcohol, 61*, 290-300.
- Nagin, D. S. (2005). *Group-based modeling of development*. Cambridge, MA: Harvard University Press.

- Neff, L. A., & Karney, B. R. (2003). The dynamic structure of relationship perceptions: Differential importance as a strategy of relationship maintenance. *Personality and Social Psychology Bulletin, 29*, 1433-1446.
- Previti, D., & Amato, P. R. (2004). Is infidelity a cause or a consequence of poor marital quality? *Journal of Social and Personal Relationships, 21*, 217-230.
- VanLaningham, J., Johnson, D. R., & Amato, P. (2001). Marital happiness, marital duration, and the U-shaped curve. *Social Forces, 78*, 1313-1341.
- Waite, L. J., Browning, D., Doherty, W. J., Gallagher, M., Luo, Y., & Stanley, S. M. (2002). *Does divorce make people happy: Findings from a study of unhappy marriages*. New York: Institute for American Values.
- Waite, L. J., & Luo, Y. (2004). *Marital happiness and marital stability: Consequences for psychological well-being*. Unpublished Paper. University of Chicago.
- Weishaus, S., & Field, D. (1988). A half century of marriage: Continuity or change? *Journal of Marriage and the Family, 50*, 763-774.
- White, L. (1983). Determinants of spousal interaction: Marital structure or marital happiness. *Journal of Marriage and the Family, 45*, 511-519.
- White, L., & Rogers, S. J. (2000). Economic circumstances and family outcomes: A review of the 1990s. *Journal of Marriage and Family, 62*, 1035-1051.
- Zuo, J. (1992). The reciprocal relationship between marital interaction and marital happiness: A three-wave study. *Journal of Marriage and the Family, 54*, 870-878.

Table 1

*Diagnostics of Model Adequacy*

Full Sample (N=704)					
Trajectory	<i>AvePP<sub>j</sub></i>	<i>OCC<sub>j</sub></i>	<i>Prob<sub>j</sub></i>	<i>Prop<sub>j</sub></i>	<i> % Dif.</i>
5 (HS-2)	.833 <sup>a</sup>	18.25 <sup>a</sup>	.215	.201	6.51 <sup>a</sup>
4 (HS-1)	.848 <sup>a</sup>	6.53 <sup>a</sup>	.461	.480	4.12 <sup>a</sup>
3 (CL)	.848 <sup>a</sup>	46.91 <sup>a</sup>	.106	.105	0.94 <sup>a</sup>
2 (LS)	.830 <sup>a</sup>	21.85 <sup>a</sup>	.183	.178	2.73 <sup>a</sup>
1 (LD)	.925 <sup>a</sup>	334.96 <sup>a</sup>	.036	.035	2.78 <sup>a</sup>

*Note.* Probabilities and proportions are presented to three decimal places.

HS=High Stable. CL=Curvilinear. LS=Low Stable. LD=Low Declining.

<sup>a</sup> Exceeds criteria presented in Nagin (2005) as evidence for a well-fitting model.

Figure 1. Trajectories of marital happiness.

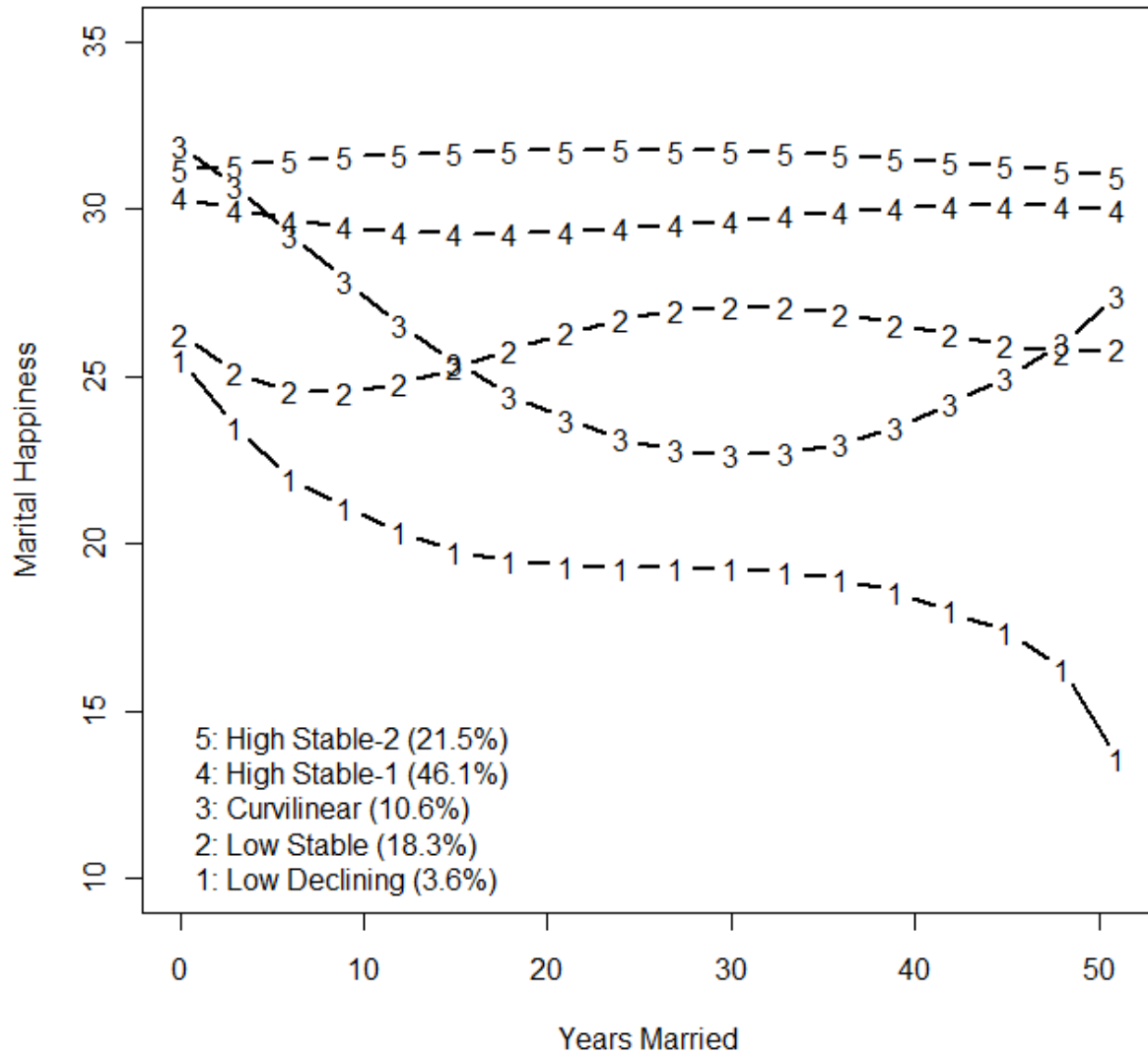
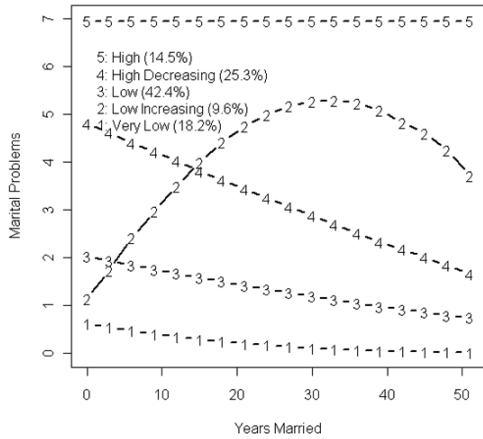
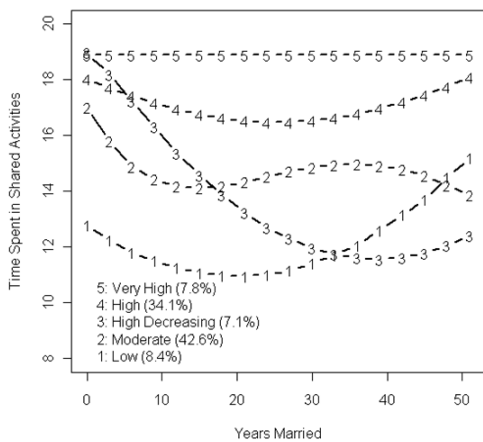


Figure 2. Trajectories of: a) marital problems, b) time spent in shared activities, and c) economic hardship.

a)



b)



c)

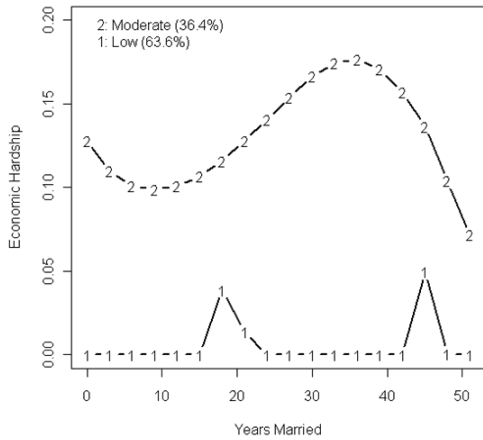


Figure 3. Dual-trajectory models for: a) marital happiness/marital problems, b) marital happiness/time spent in shared activities, and c) marital happiness/economic hardship. LD=Low Declining. LS=Low Stable. CL=Curvilinear. HS=High Stable.

