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The Goldilocks Principle:

Do Deviations from the Average Courtship Predict Divorce?

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The Goldilocks Principle:

Do Deviations from the Average Courtship Predict Divorce?

by

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The Goldilocks Principle:

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The benefits of being average were examined within the context of romantic relationships by focusing on courtship progression and events for 164 married couples. The courtship progression was captured using a graph of the fluctuations in the percentage chance of marriage for each spouse from when couples first began dating up until the wedding day. Five factors were then used to capture the graph: Time elapsed to progress from 25 to 75% chance of marriage, turbulence in chance of marriage values, average change in percent chance of marriage between relationship events, courtship length, and the sum of squared deviations from a straight line connecting when couples first started dating until their marriage date. Couples also reported on the timing of important relationship events (i.e., meeting parents, first fell in love, first sexual intercourse, and engagement) that were then compared to the order of the average courtship event progression. Deviations from the average courtship in terms of either graphical or event indicators did not significantly predict whether or not couples divorced in the first 13 years of marriage.

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The Goldilocks Principle:

Do Deviations from the Average Courtship Predict Divorce?

The timeless question of which romantic relationships will succeed intrigues both researchers and laypeople alike, and approaches to answering the question vary widely. Over the past several decades, researchers have identified a multitude of indicators of marital success including individual-level predictors (e.g., personality; Bentler & Newcomb, 1978), couple-level predictors (e.g., conflict interaction patterns; Gottman & Krokoff, 1989; Kiecolt-Glaser, Bane, Glaser, & Malarkey, 2003) and contextual-level predictors (e.g., socioeconomic status; Nobles & Buttenheim, 2008). Furthermore, ideas about when to assess these predictors vary as well. Although many researchers initially focused on predictions derived from the newlywed years, the importance of early courtship processes that foreshadow how couples will adjust to marriage has gained increasing empirical attention (e.g., Cate & Lloyd, 1992; Kelly, Huston, & Cate, 1985; Huston, 2009; Niehuis, Huston, & Rosenband, 2006; Surra, Arizzi, & Asmussen, 1988). For instance, courtships that are too short and accelerated or too long and gradual fare the worst in terms of marital outcomes (Huston, 1994; Huston, Neihuis, & Smith, 2000); the average courtship progression may in fact be the ideal. Further, this empirical focus on deviations from the norm is also reflected in the manner in which laypeople evaluate their own and other's romantic relationships (Fehr, 1988). Collectively, these types of findings beg the question: Is there something special about the average relationship? A closer examination of the importance of being average across organisms and phenomena provides insight into why the average relationship might be the ideal, starting with

children's socialization and extending across disciplinary boundaries from astronomy to psychology.

The Importance of Being Average

Children are socialized with nursery tales such as "Goldilocks and the Three Bears", where Goldilocks demonstrates the fundamental axiom of balance as she discovers that the averagely heated porridge is "just right". This axiom emphasizing balance was subsequently termed the Goldilocks Principle, and appears in scientific research ranging from biomedicine to astronomy and economics ("The Goldilocks Principle", 2009). Below, I review three diverse lines of work that illustrate the Goldilocks Principle in humans.

First, the human body is an exemplary display of the Goldilocks Principle. Each system of the human body relies on a series of checks and balances to maintain hormone levels within an optimal range; deviations from this balance in either extreme can have dire consequences. For example, antithrombotic proteins and prothrombotic proteins exist at an optimal balance, a surplus in either protein results in death. Specifically, excessive prothrombotic protein counts lead to an increased risk for blood clots whereas excessive antithrombotic proteins prevent blood from clotting and can result in death following minor cuts (Selwyn, 2003).

The Goldilocks Principle is also apparent at the fundamental level of genes. The average genotype (i.e., heterozygote genotype), consisting of one recessive allele paired with a dominant allele, has a higher relative fitness than either extreme homozygote recessive or homozygote dominant genotype. Having one of each allele gives the organism the advantages of both the recessive and dominant alleles without the

disadvantages associated with the extremes (Allison, 1954). Consider the case of sickle-cell anemia, a fatal blood disorder characterized by red blood cells that assume an abnormal rigid, sickle shape. Sickle-cell anemia develops in individuals with two sickle-cell alleles (i.e., homozygote recessive genotype). Despite the fatal consequences associated with the recessive genotype, evolution has not eliminated the sickle-cell allele because individuals with one sickle-cell allele and one normal adult hemoglobin allele develop a resistance to malaria (Allison, 1954). Therefore, individuals with one of each allele (i.e., the average heterozygote genotype) have the highest survival rates in tropical and sub-tropical regions plagued by malaria. The homozygote recessive genotype develops into sickle-cell anemia, while the other extreme of the homozygote dominant genotype is susceptible to the equally fatal malarial infection. In contrast to the homozygote genotype, the average heterozygote genotype overcomes the disadvantages associated with each allele by balancing the rigid red blood cells that deflect malaria with the normally functioning and flexible red blood cells. Similar 'average is best' genetic benefits are seen in organisms ranging in complexity from fruit flies (Kalmus, 1945) to humans (Allison, 1954; Poolman & Galvani, 2007).

Another example of the Goldilocks Principle is that the most beautiful faces are technically perfectly "average" (Langlois & Roggman, 1990). Computer generated composites of individual faces created using digital averaging procedures are consistently rated by adults and infants as more attractive than either of the individual faces used to create the composite (Langlois & Roggman, 1990; Rubenstein, Kalakanis, &Langlois, 1999). Two complementary theories have been hypothesized to explain why humans show this preference. First, the preference for the average face may reflect an artifact of

cognitive averaging. This process of cognitive averaging has long been considered a hallmark for how humans learn (Rubenstein et al., 1999). Humans categorize objects for the sake of efficiency; otherwise, environments quickly become overwhelming, with every slight variation of an object causing a novel stimulus to be reexamined. For each category, such as the human face, adults and infants form a prototype by averaging members of that category (Homa, 1978; Komatsu, 1992; Langlois & Roggman, 1990; Rhodes & Tremewan, 1996; Rosch, 1978; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976; Rosch, Simpson, & Miller, 1976). An interesting result of this process of cognitive averaging is that the prototypical object is the most preferred member of a category because of its standing as a unique and representative member of the category. Because an averaged face represents the prototypical features of a face, without imperfections, it essentially exists as the standard by which all other faces are compared. Thus, we prefer average faces because average faces are the closest to the prototypical face and thereby minimize cognitive effort required to identify the face as a human face.

Second, humans may prefer average faces because of natural selection (Darwin, 1859). Specifically, Darwin argues that the average values of many population characteristics are more evolutionarily adaptive than the extremes. As Langlois and Roggman (1990) outline, in order for natural selection to stabilize it relies on evolutionary pressures that operate against the extremes of the population, relative to those close to the average (Barash, 1982; Dobzhansky, 1970). Thus, individuals who display more average characteristics should be less likely to carry harmful genetic mutations and, therefore, should be preferred relative to individuals displaying more extreme characteristics (Bumpas, 1899; Schmalhausen, 1949; Symons, 1979). In other

words, society prefers average faces because facial features characteristic of the average prototypical face should be associated with good genes, free from the imperfections and genetic mutations found at the extremes of the population (Schmalhausen, 1949).

A third example of the Goldilocks Principle extends to psychological phenomena, such as self-esteem. Society tends to view self-esteem as a linear relationship without bounds, the more the better; however, both extremes of high and low self-esteem are associated with negative outcomes. There is a wealth of research detailing the disadvantages associated with having low self-esteem, perhaps best summarized by Branden (1984): "I cannot think of a single psychological problem—from anxiety and depression, to fear of intimacy or of success, to spouse battery or child molestation—that is not traceable to the problem of low self-esteem" (p. 12). The less researched extreme of high self-esteem is also associated with its own disadvantages, including narcissism, defensiveness, and aggression (Baumeister, Campbell, Krueger, & Vohs, 2003). Contrary to both extremes, having an average self-esteem has not been linked to the disadvantages associated with either extreme of low or high self-esteem (Baumeister, Tice, & Hutton, 1989).

Interestingly, despite the very clear benefits of being average, the application of the Goldilocks Principle has yet to be explored within the context of interpersonal processes. To that end, the current study examines a key developmental period of relationships, or what is commonly referred to as the *courtship*. The focus on courtships is rooted in the finding that courtship processes foreshadow later marital outcomes (Kelly et al., 1985; Huston, 2009). For example, premarital conflict sets the stage for marital conflict; premarital conflict does not relate to partners' premarital feelings for one

another, but it does predict satisfaction levels long after their wedding day (Kelly et al., 1985).

Preliminary support for the relevance of the Goldilocks Principle to courtships has been established by individually linking the extremes of a handful of courtship characteristics to negative marital outcomes. Courtships that are very short and accelerated or too long and gradual are more likely to end in divorce, suggesting that the average courtship may in fact be the ideal (Huston, 1994; Huston et al., 2000). Although the effects of relationship length are provocative, courtships are an extremely rich source of information; the length and rate of acceleration represent merely two potential indices of many potential courtship indices – i.e., they provide an incomplete portrait of what an average relationship may look like. Thus, the current study utilized multiple observed indices of average to predict marital outcomes.

The layperson's bias against extreme courtships serves as additional preliminary support that the average courtship may be ideal. This bias is evidenced by the negative connotations ascribed to colloquial phrases, such as having a "shotgun wedding" or "dragging your feet". Scientifically testing the Goldilocks Principle within the context of the courtship requires testing the marital outcomes associated with the average courtship rather than solely focusing on the extremes of the population (e.g., courtships that are too short or too long). Further, previous work focused on various forms of cluster analysis to identify groups of couples that had similar courtship features. The names for each cluster were subsequently assigned according to the features typical of each cluster (Surra, 1985). Cluster analysis condenses the variance in the data to a limited number of categories, thereby greatly restricting the range and limiting the predictive power of

variance in category membership predicting marital outcomes. The proposed study will utilize a continuous index of deviations from the average courtship for each indicator rather than categorical membership in order to more accurately assess whether the average courtship is ideal.

The Current Study

In the current study, I tested the Goldilocks Principle within the context of courtship, examining whether the average courtship is indeed associated with better marital outcomes. The operationalization of the average courtship is of central importance to the test of this hypothesis. As described in detail in the Methods section, below, what constitutes the average courtship was constructed using each spouse's internal representation of the courtship progression and the time elapsed before important events in the relationship (e.g., engagement, first intercourse). Because women typically feel more responsible for the emotional tone and maintenance of relationships and have an increased sensitivity to problems of incompatibility in interests relative to men (Hill, Rubin, & Peplau, 1976; Markus & Kitayama, 1991; Nolen-Hoeksema & Jackson, 2001), women's depictions of their relationships may deviate from men's depiction of the relationship. Considering the likely differences in how men and women describe their courtships, the current study will examine the graphical indicators of average separately for men and women. In contrast, the event indicators of average will be evaluated at the couple level because timing of important courtship events, such as when a couple announced their engagement, are dates common to both spouses and their relationship.

Method

Participants

The data used for the current study were gathered as part of the Processes of Adaptation in Intimate Relationships (PAIR) Project, a 13-year longitudinal study of 168 couples who married for the first time in 1981. The sample consists of predominately white, young, working class couples identified by marriage license records available in four rural counties of central Pennsylvania. The majority of the participants came from working-class backgrounds with an average family income just below the national American income of a family of four. A brief overview and the relevant details of the procedure for this study will be described below (for a more detailed review see Huston, McHale, & Crouter, 1986; Huston, Caughlin, Houts, Smith, & George, 2001). Previous publications of this dataset have covered a wide range of relationship phenomena, including how the qualities partners bring to a relationship shape its course, the importance of having compatible views on gender roles, and comparing developmental models of marital distress and divorce (for a comprehensive review, see Huston, 2009). However, this is the first analysis to examine the association between the average courtship progression and divorce.

Procedure

Couples initially entered the study two months after the couples' wedding, the second and third phases occurred at yearly intervals thereafter, and a final fourth phase occurred approximately 13 years after couples were wed. The first three phases of data collection consisted of a face-to-face interview and a series of telephone diary interviews. The face-to-face interviews were primarily conducted in the couples' homes with spouses separated to ensure each participant felt comfortable when talking about their relationship and spouse. Included in the face-to-face interviews was a collection of a broad range of

measures, such as love, marital satisfaction, and compatibility measures (see Huston, McHale, & Crouter, 1986, for procedural details).

Creating Graphs of the Course of Commitment

In addition to the standard measures collected across phases 1-4, the initial phase also collected extensive information regarding the couple's courtship experiences utilizing a structured interview to separately graph the development of each spouses' commitment to marriage from the time the couple first started dating until their wedding day (see Huston, 1994; Huston, Surra, Fitzgerald, & Cate, 1981; Surra, 1985). Husbands and wives constructed the graphs separately, with male and female interviewers, respectively. Initially, interviewers informed each spouse that couples arrive at the decision to marry in many ways, and that the goal of the study was to develop a sense of the variety of different paths to marriage rather than determine if any one pattern was more typical than another. Participants were then asked to give a brief description of their relationship from first meeting to marriage. Afterwards, the participants were given a blank courtship graph, already marked with the beginning and ending dates of their courtship. The horizontal axis represented "time" and the vertical axis was labeled "chance of marriage". Participants were then informed that they would use this graph to illustrate how their chance of marriage changed, considering both their own feelings and the feelings they thought their partner had at the time.

Participants were first asked to mark significant events along the X "time" axis of the graph. Next, with the assistance of the interviewer, the participant indicated the chance of marriage (from 0 to 100%) starting with when they first met their partner. They were then asked to consider the next time that they were aware that the chance of

marriage had changed and plot what the new chance of marriage was at this second point. After plotting the second point, they described to the interviewer how the two points should be connected (e.g., whether it was a linear, monotonic progression, or a sudden change). Finally, for each event marked the participant was asked to explain what made the chance of marriage change. This same procedure was repeated until a complete trajectory was recorded from when participants first met until their wedding date (see Figure 1 for example graph). At the completion of the graphing portion participants were shown a list of events that commonly occur during courtship (e.g., first intercourse, moved in together) and were asked to indicate if and when these events took place.

Graphical Indicators

The courtship graphs capture participants' subjective internal representation of the courtship progression. As can be seen in the graphs in Figure 2, some courtships are plagued by indecision, whereas others progress extremely quickly to marriage. Others stall for months at a time before moving forward again. A majority of the variety between courtships can be identified by the following five variables: Courtship length, the time elapsed for the commitment to marriage to increase from a 25 to 75% chance of marriage, the turbulence in the commitment trajectory as indicated by the proportion of downturns, the average slope between events (i.e., turning points), and the sum of squared deviations from a straight line. For example, the blue courtship trajectory on the far left side of the graph in Figure 2 is distinguished from the green courtship trajectory by the amount of time to progress from 25 to 75% chance of marriage, courtship length, and the average slope between events. A courtship following a trajectory similar to the blue courtship was described by Laurie, who recorded that the chance of marriage was 70% after her first

date with her future husband, “From then on”, she said, “we were around each other constantly…I had the feeling we would marry soon” (Huston, 1994, p. 51). The green trajectory is better captured by Janice, whose courtship with Rob was just over 3 years, she described the slow growth of their commitment as, “[I]t took me a long time before I was sure that I really loved him…It was hard to get to know him at first; he had just broken up with another girl and I think he was reluctant [to get involved]” (p. 51). The orange courtship trajectory is distinguished from both the blue and green by a high turbulence index. The story of Raylen, a woman involved in a turbulent courtship, is best captured by her own seemingly contradictory account of how she and her fiancé dealt with conflict:

> David and I have never really had any conflicts…He barked a lot and I listened and I might get upset and cry a little, but I understood why he was upset…I used to react. Now, I absorb what he has to say because I realize the type of person he is. If I were to say something back it would just make it worse. So, if he’s doing something to start a fight….like calling me stupid, or something…I just wait until he’s more calmed down and I’m more calmed down…then I’ll discuss it with him. (p.52)

The orange trajectory is further distinguished from the blue trajectory by the average slope; both trajectories have a similar index of time to progress from 25 to 75% chance of marriage, but the orange trajectory has extreme fluctuations in the chance of marriage relative to the blue trajectory captured by the average slope between events. The average slope also provides additional unique information to the turbulence measure by

indexing how extreme the changes in the chance of marriage are at each turning point. For example, the orange and green lines have similar turbulence (i.e., number of downturns), but have large differences in average slope between events. Finally, the index accounting for the sum of squared deviations form a straight line provides additional unique information on how smooth, gradual, and steady the progression towards marriage was. The red trajectory exhibits few deviations from a straight line relative to the orange trajectory. In addition to the ability of these indicators to index the variety in courtship trajectories, these indicators were chosen based on prior research identifying the association between each indicator and later relationship outcomes (Huston, 1994; Surra, 1985). For example, courtships that rapidly progressed from 25 to 75% chance of marriage were more likely to divorce (Huston, 1994; Surra, 1985). Because prior research examined each of these indicators individually in relation to marital outcomes, there is minimal theory to base a confirmatory factor analysis on an a priori factor structure. Thus, the current study utilized exploratory factor analysis to determine the underlying latent factor structure and how each indicator contributed to average.

Event Indicators

In addition to creating a graphical depiction of the each spouse's courtship, information regarding timing and percent chance of marriage when important, common relationship events occurred was collected. The current study examined the amount of time elapsed before the following six events: Husband first falls in love, wife first falls in love, first sexual intercourse, husband meets wife's parents, wife meets husband's parents, and the couple becomes engaged. These events were then ranked in order of

occurrence within each couple and the average courtship progression determined by averaging the rank of each event across the sample. The magnitude of deviation from the average courtship progression for each event was summed to create a single index of the deviation from the average courtship event progression for each couple.

Marital Outcomes

The fourth phase of the study was conducted between 13 and 14 years after the couples were married. The telephone-interview assessed long-term marital outcomes such as marital status and marital satisfaction. Divorce records were collected through court records or personal testimony from all 56 couples that were known to be divorced. All but four of the original 168 couples were contacted: 105 couples were still married, 56 had divorced, and 3 were widowed. The 3 widowed spouses were excluded from analyses. The remaining 161 couples were categorized by their marital status at Phase 4 as married (coded as 0) or divorced (coded as 1).

The divorce rate of a national sample of couples that married for the first time in the United States between 1979 and 1983 reported a similar divorce rate as the PAIR sample (U.S. Center for National Health Statistics, 1991). Considering that divorce rates for couples after 14 years of marriage drop to 2% per year, and less than 1 % after 25 years of marriage, approximately 85% of the couples in the original sample who will someday divorce had already done so by the time the fourth phase of data collection was completed.

Results

What is Average?

The following are the means for each indicator prior to being standardized[1] (see Table 1). The average amount of time to progress from 25 to 75% chance of marriage for wives was 9.48 months (*SD* = 11.71) and 8.72 months (*SD* = 9.83) for husbands. The average amount of turbulence in the courtship (i.e., number of downturns in relationship divided by courtship length) for wives was 6.20 (*SD* = 7.38) and 4.89 for husbands (*SD* =7.00). The average slope between turning points for wives was 0.39% chance of marriage points per day (*SD* = 0.39) and 0.37% chance of marriage points per day (*SD* = 0.36) for husbands. The average courtship length was 28.12 months (*SD* = 22.83) and an average sum of squared deviations from a straight line of 7,617.67 (*SD* = 8,031.69) for wives and 6798.39 (*SD* = 7,462.97) for husbands. The following represents the average courtship progression: Husband meets wife's parents (average ranking of 2.11, *SD* = 1.09), wife meets husband's parents (average ranking of 2.19, *SD* = 1.06), first sexual intercourse (average ranking of 3.52, *SD* = 1.37), wife falls in love (average ranking of 3.60, *SD* = 1.15), husband falls in love (average ranking of 3.81, *SD* = 1.23), and couple becomes engaged (average ranking of 5.73, *SD* = 0.53). Thus, the average courtship progression suggests that the majority of couples introduce their partners to family relatively early in the relationship. Sexual intercourse follows closely with falling in love and culminates in the couple becoming engaged.

Data Analysis Overview

All analyses were conducted using SPSS v. 16. To assess the dimensionality of the set of five proposed graphical indicators of average (i.e., time elapsed to progress from 25 to 75% chance of marriage, turbulence, length, average slope, sum of squared

[1] The means for husbands' and wives' graphical indicators were subjected to a series of paired sample t-tests, there were no significant differences.

deviations from a straight line), an exploratory factor analysis was conducted separately for husbands and wives. Using the regression method of computing factor scores, explained in greater detail below, the factor score coefficients were used as weights to create a factor score for each spouse which represent how much each couple deviated from the average courtship in terms of the graphical indicators as a whole. Deviations from the average courtship in terms of the graphical indicators were then entered into a binary logistic regression to determine whether deviations from the average courtship predicted marital status 13 years later.

Because of the extremely high interdependence inherent in rank ordering variables and the resultant positive definite matrix (Warner, 2008), an exploratory factor analysis was not appropriate for the event indicators (i.e., wife fell in love, husband fell in love, first sexual intercourse, wife meets husband's parents, husband meets wife's parents, engagement). Rather than enter each indicator separately into a logistic regression, the magnitude of deviation from the average courtship event progression for each couple on each event was summed to create a single index of the event deviation from average. For example, if a couple experienced sexual intercourse first in the series of events, the absolute difference between 1 and the sample's average ranking for sexual intercourse (i.e., 3.52) would result in the magnitude of deviation from the average courtship being 2.52 for the event of sexual intercourse. The absolute deviation from the average courtship would be calculated for each of the events and then added to create a single index of how much the couple deviated from the average courtship event progression. The single event index was then entered into a binary logistic regression to

determine if deviation from the average courtship event progression predicted marital status 13 years later[2].

Graphical Indicators

In order to correct for the positive skew present throughout the dataset, each graphical indicator was subjected to a $\log_{10}$ transformation. This transformation allowed retention of outliers typically eliminated in statistical applications, while mitigating their impact on the analyses by bringing the most extreme values closer to the center of the distribution (Lawless, 2007). Including outliers was important because extreme deviations from average are of particular interest when examining whether deviations are associated with negative marital outcomes. After the $\log_{10}$ transformation, each graphical indicator was standardized within indicator within gender to create z-scores to represent the deviation from the average courtship for each spouse.

Before subjecting the graphical indicators to an exploratory factor analysis, the factorability of husbands' and wives' indicators was assessed using the correlation matrix and Bartlett's test of sphericity (Warner, 2008). Each indicator was significantly correlated with at least one other indicator, suggesting an underlying factor structure. In addition, Bartlett's test of sphericity was significant, χ^2 (10) = 304.10, $p < .01$; χ^2 (10) = 298.71, $p < .01$, for husbands and wives, respectively. A significant sphericity finding provided additional evidence that the relationship among the variables was strong and conducive to a factor analysis. Thus, husbands' and wives' graphical indicators were subjected to an exploratory factor analysis. The principle components method was used to extract factors, followed by a promax (oblique) rotation to permit possible factor

[2] The reported pattern of results is virtually identical when coding marital status in terms of happily married (coded as 0) vs. unhappily married or divorced (coded as 1).

intercorrelations and to clarify item factor loadings, allowing for simpler interpretation of the underlying factor structure (Hendrickson & White, 1964). Missing data was handled using pairwise deletion. An examination of the scree plot and associated eigenvalues suggested the presence of 2 factors: 4 variables loaded on the first factor (Husbands: Eigenvalue = 2.41, 48.29% variance; Wives: Eigenvalue = 2.33, 46.68% variance), and 2 variables loaded on the second factor (Husbands : Eigenvalue = 1.24, 24.85% variance; Wives: Eigenvalue = 1.25, 24.97% variance). A variable was considered to load on a factor if the factor score coefficient was greater than 0.4. Each factor is required to have a minimum of three variables loading on it in order to be retained in the model (Costello & Osborne, 2005; Warner, 2008); therefore, the second factor was dropped for both husbands and wives. A final confirmatory factor analysis was run that forced the extraction to only one factor. Husbands' final graphical indicators factor accounted for 48.29% of the variance (eigenvalue = 2.41). Wives' final graphical indicators factor accounted for 46.68% of the variance (eigenvalue = 2.33).

Factor scores for each spouse on the graphical indicators factor were then calculated using the factor score coefficients as weights, also known as the regression method of computing factor scores (see Tables 2 & 3 for wives' and husbands' factor score coefficients, respectively). For example, wives' factor scores were computed using the following formulaic expression: 0.907*(length) + 0.069*(turbulence) + 0.853*(progression from 25 to 75%) - 0.705*(average slope) + 0.530*(sum of squared deviations from a straight line). As can be seen in this formulaic expression, a coefficient of 0.907 for length weights deviations from the average courtship length more heavily

than deviations from the average amount of turbulence in the relationship, which has a factor score of 0.069.

The deviations from the average courtship graphical factor were then entered as the predictor variable in a binary logistic regression to predict divorce at phase 4. A test of the full model (with the graphical factor of average) compared with a constant-only or null model was not statistically significant, χ^2 (1) = .038, p = .845; χ^2 (1) = .123, p = .726, for husbands and wives, respectively. Husbands' deviations from the average courtship in terms of the graphical factor were not associated with marital status as indexed by the pseudo r^2 coefficient, the Cox and Snell r^2. The associated beta weight of -0.032 (*SE* = .163) was not significant, Wald (1) = .038, p = .845. The odds ratio for husbands' graphical factor of average was 0.97. An odds ratio of 1 is an equal chance of either outcome (i.e., marriage or divorce) and indicates no difference in outcome predicted by knowledge of the predictor (i.e., amount of deviation from average). Wives' deviations from the average courtship in terms of the graphical factor were not associated with marital status as indexed by the Cox and Snell r^2 value of approximately 0. The associated beta weight of 0.037 (*SE* = .165) was not significant, Wald (1) = .051, p = .822. The odds ratio for wives' subjective factor of average was 1.038.

Event Indicators

The events were ranked in order of occurrence within each couple (i.e., wife falls in love, husband falls in love, first sexual intercourse, wife meets husband's parents, husband meets wife's parents, engagement). Couples with missing data for any event (*N* = 11) were excluded from analysis. The average courtship was then determined by taking the average rank for each event across the sample. The magnitude of deviation from the

average courtship event progression was then calculated for each couple for each event and summed to create a single event index of the deviation from the average courtship.

The event index of the deviation from the average courtship was then entered as the predictor variable in a binary logistic regression to predict divorce at phase 4. A test of the full model (with the event index of average) compared with a constant-only or null model was not statistically significant, χ^2 (1) = 2.68, p = .10. Couples' event composite of average shared very little association with marital status as indexed by a Cox and Snell r^2 value of 0.018. The associated beta weight of 0.143 (*SE* = .088) was not significant, Wald (1) = 2.655, p = .103. The odds ratio for couples' event index of average was 1.154.

Discussion

The benefits of being average have been documented across a range of organisms and phenomena. The current study examined whether the same benefits of being average applied to romantic relationships. Specifically, I focused on the courtship period to create an index of the average relationship and used that index to attempt to predict later marital outcomes (Cate & Lloyd, 1992; Kelly et al., 1985; Huston, 2009). Courtship graph of the percent chance of marriage over time captured participants' subjective internal representations of the courtships' progression. Five indicators were then derived from the graph: Time elapsed to progress from 25 to 75% chance of marriage, turbulence in chance of marriage values, average change in percent chance of marriage between relationship events, courtship length, and the sum of squared deviations from a straight line connecting when couples first started dating until their marriage date. These indicators were averaged within gender within indicator to construct the average courtship for husbands and wives separately. Each spouse's courtship was then compared

to the average courtship to create an index of how much each spouse deviated from the average courtship. Couples also reported on the timing of important relationship events, including the following: Wife first fell in love, husband first fell in love, first sexual intercourse, wife meets husband's parents, husband meets wife's parents, and couple became engaged. The magnitude of each couple's deviation from the average courtship event progression provided an event indicator of averageness.

Binary logistic regression was utilized to examine whether deviations from the average courtship predicted whether couples divorced in the first 13 years of marriage. I was unable to reject the null hypothesis that deviations from the average courtship is not predictive of divorce in terms of either graphical or event indicators. In other words, husbands' and wives' deviations from the average courtship in terms of both the courtship graphs and event progression were not associated with later marital outcomes.

The overwhelming presence of the Goldilocks Principle across disciplines, organisms, and phenomena begs the question: Why was the average courtship not associated with better marital outcomes? I examined this question using two opposing assumptions concerning the "true" (i.e., real world) association between deviations from the average courtship and marital outcomes. First, the results may not have been significant because there is not an association between deviations from the average courtship and marital outcomes. In other words, the null findings are a reflection of the real world. Alternatively, deviations from the average courtship may in fact be associated with marital outcomes, but possible limitations of the current study precluded rejecting the null hypothesis. I elaborate on each of these potential explanations.

First, the results may not have been significant because there is in fact no association between deviations from the average courtship and marital outcomes. Although the level of complexity of the phenomena examined based on the Goldilocks Principle has increased over time (e.g., genes to facial attractiveness to self-esteem), the current study is the first to examine the Goldilocks Principle in a context as complex as romantic relationships. As noted in the introduction, courtships are influenced by a seemingly endless number of factors. Examination of romantic relationships requires considering two individuals interacting that each have a multitude of psychological (e.g., personality, self-esteem) and environmental (e.g., cultural norms for dating, socioeconomic status) factors that impact the relationship. For instance, socioeconomic status has been identified as a moderator of countless constructs relevant to relationships, such as division of household labor and distress (Claffey & Mickelson, 2009), relationship satisfaction and contextual stressors (Springer, 2007), and conflict (Chen et al., 2006). Constructing the average courtship can quickly become an overwhelming task when considering that socioeconomic status impacts relationships at many levels, and represents only one of many factors that impacts relationships. The Goldilocks Principle may not apply to courtship and later marital outcomes because it is an oversimplification of a complex construct.

The second opposing assumption is that deviations from the average courtship may in fact be associated with marital outcomes, but possible limitations of the current study precluded rejecting the null hypothesis. Study limitations may have undermined the examination of the Goldilocks Principle within the context of romantic relationships. These concerns are admittedly post-hoc, but worthy of discussion given that this study is

the first application of its kind. Specifically, there are at least three limitations of the current study that may have contributed to the null findings: The operationalization of the average courtship, the analytic strategy, and the study sample.

First, the operationalization of the average courtship is still in the initial exploratory phase because this is the first study to test the Goldilocks Principle within romantic relationships. One of the features common to past applications of the Goldilocks Principle is that they all benefitted from well-tested and established theories for how to measure the construct in question. For instance, the field of biomedicine has extremely accurate ways of measuring genotype, hormones, and protein levels (Ronald et al., 2005). Few question the validity or accuracy when scientists are measuring these biomarkers. This same level of confidence is difficult to obtain anywhere in the social sciences because of the complex social nature of the constructs being studied (Carmines & Zeller, 1979). Despite this difficulty, social scientists have spent decades researching constructs such as self-esteem and attractiveness to create valid and reliable scales (Blascovich & Tomaka, 1979). The current study chose indicators that prior research identified as predictive of later relationship outcomes (Huston, 1994; Surra, 1985), but there are likely a multitude of other variables to consider when constructing the average courtship. For instance, the event indicators were rank ordered, but this way of indexing events ignores the time elapsed between when each event occurred and how serious couples' considered their relationships at the time the event occurred. Courtships that accelerate very quickly or gradually are associated with negative marital outcomes (Huston, 1994; Huston et al., 2000), but solely considering the rank order of the events ignores how quickly or slowly the events occurred. Prior research examining relationship event progression in dating

couples indexed not only the order in which events occurred, but also which stage of dating the couple was in when the event occurred (e.g., casually dating; King & Christensen, 1983). This method of analyzing courtship event progression would allow researchers to distinguish between couples that may have the same rank order of events, but had the events occur during a more casual versus more serious stage of dating. For instance, two participants may have both had sexual intercourse as the second of six events, but one couple was still in the casual stage of dating whereas the other couple was formally engaged. This distinction is important because engaging in sexual intercourse while casually dating is perceived differently than engaging in sexual intercourse while formally engaged (Sprecher & Hatfield, 1996). Future research examining deviations from the average courtship may more accurately capture the average relationship by incorporating not only the rank order of events, but also the time elapsed between when each event occurred and the stage of dating at the time the event occurred.

The courtship graphs captured participants' subjective internal representation of the courtship progression. Five indicators were then used to capture the graph: Time elapsed to progress from 25 to 75% chance of marriage, turbulence in chance of marriage values, average change in percent chance of marriage between relationship events, courtship length, and the sum of squared deviations from a straight line connecting when couples first started dating until their marriage date. Each of these indexes focused on the fluctuations in the percent chance of marriage without considering the reasons behind why the percentage chance of marriage changed. The types of reasons spouses provide for changes in commitment levels are predictive of later marital satisfaction (Surra et al., 1988). For instance, spouses with a large proportion of reasons that focused on

interactions with the social network and alternative dating partners as causes of changes in commitment levels during the courtship subsequently reported lower marital satisfaction. Incorporation of the reasons behind the fluctuations in commitment levels captures more of the courtship progression than the graph alone. In addition, because husbands and wives were analyzed separately, only one perspective of how the courtship progressed was considered. Examining the courtship at the dyadic level may provide more insight into the dynamics present in the courtship than one perspective alone can provide. For instance, analyzing spouses' perspectives on traditional gender roles at the dyadic level reveals a much clearer picture of the relationship between gender roles and satisfaction with the division of household labor than knowledge only one spouse can provide (Atkinson & Huston, 1984). It is not that having a more traditional sex-typed versus modern egalitarian view on gender roles and the division of household labor is associated with more positive versus negative marital outcomes; rather, couples that hold similar views are more satisfied than couples with conflicting views. Analyzing husbands and wives separately overlooks the importance of concordance at the dyadic level when considering satisfaction with the division of household labor. The same may be true when analyzing courtship progression: examining husbands and wives separately may overlook the potential importance of concordance at the dyadic level for how the courtship progressed.

Examining whether the average courtship is associated with better marital outcomes requires not only constructing the average courtship, but also selecting the most appropriate index of marital outcomes. The current study identified remaining married as the best marital outcome, but not all couples that remain married are happily married.

Importantly, the reported pattern of results is virtually identical when coding marital status in terms of happily married versus unhappily married or divorced. Both of these analyses condensed the range of responses for marital outcomes into a dichotomous outcome, thereby limiting explanatory power (Whisman & McClelland, 2005). Selecting a continuous index of marital outcomes, such as satisfaction, would increase the range and explanatory power when examining the association between deviations from the average courtship and marital outcomes.

In addition to considering the best set of variables to measure, future researchers should also carefully consider the best analytic approach when condensing the data. The current study utilized exploratory factor analysis with principal components extraction to probe for the underlying latent subjective factor of average. A single factor was extracted that was a good fit for the data, but was only able to account for approximately 40% of the variation. The other 60% of the variation from the graphical indicators was lost when creating the factor scores. Future researchers could prevent this loss by creating a single index to capture all of the unique variation in the courtship graphs. The fluctuations found in the courtship graphs are similar to auditory wave patterns. Audiologists have developed advanced mathematical techniques to index these wave patterns using a single function (Kronland-Martinet, 1988). Cross-discipline collaboration could apply these techniques to improve the measurement of the average courtship.

The sample population may be considered both a strength and limitation of the current study. The sample predominantly consisted of white, young, working class couples from rural Pennsylvania, which some may argue is a homogeneous sample relative to the broader US population. Sample homogeneity may have been a strength to

the extent that the average courtship has a social component dependent on the cultural norms for romantic relationships. For example, a more conservative mate-selection and sexual culture persists in China relative to Western countries (Higgins, Zheng, Liu, & Hui Sun, 2002), which should result in a different average courtship for China relative to the U.S. Comparing Chinese courtships to the average Chinese courtship and American courtships to the average American courtship may result in a more accurate assessment of the deviation from average, whereas mixing the two samples would create excessive noise in the data. On the other hand, a homogeneous sample may lead to restriction of range and less predictive power by limiting the variety of courtships present in the sample. A heterogeneous sample may increase the predictive variables' range by providing a wider variety of courtships. Future research would benefit from exploring the potential differences in the pattern of results for more homogeneous versus more heterogeneous samples.

An additional consideration for the sample population is the selection factors inherent when limiting the sample to courtships that ended in marriage. Couples that select into marriage represent a fundamentally different and more homogeneous subsample than the overarching dating sample as a whole (Lillard, Brien, & Waite, 1995). Expanding the sample to include all dating relationships would expand the range of courtships, thereby maximizing the explanatory power of deviations from the average courtship (Whisman & McClelland, 2005). In order for the average courtship to more accurately capture the full range of courtships, future samples should assess both marital and nonmarital couples.

Examining the Goldilocks Principle within the context of romantic relationships cuts across disciplinary boundaries and utilizes a macro-level approach to exploring complex relationship processes. Despite the null findings, the current findings are provocative in that they bring to light a host of challenges researchers must face if and when attempting to apply the Goldilocks Principle to the romantic relationship context. In short, Goldilocks may live happily ever after if she's in an average relationship, but determining just what constitutes 'average' may take some time.

Table 1

Average Values for Graphical and Event Indicators

	Mean	Standard Deviation
Wives' 25 to 75%	9.48 months	11.71 months
Wives' Turbulence	6.20	7.38
Wives' SS Deviations	7,617.67	8,031.69
Wives' Average Slope	0.39 percent per day	0.39 percent per day
Length	28.12 months	22.82 months
Husbands' 25 to 75%	8.72 months	9.83 months
Husbands' Turbulence	4.89	7.00
Husbands' SS Deviations	6,798.39	7,462.97
Husbands' Average Slope	0.37 percent per day	0.36 percent per day
Husband meets Wife's Parents	2.11	1.09
Wife meets Husband's Parents	2.19	1.06
First Sexual Intercourse	3.52	1.37
Wife Falls in Love	3.61	1.15
Husband Falls in Love	3.81	1.23
Engagement	5.74	0.53

Note. SS = Sum of Squared.

Table 2

Wives' Graphical Factor Score Coefficients

	Factor 1
Progression from 25 to 75%	.71
Turbulence	-.20
Sum of Squared Deviations	.38
Average Slope	-.39
Length	.99

Table 3

Husbands' Graphical Factor Score Coefficients

	Factor 1
Progression from 25 to 75%	.68
Turbulence	-.13
Sum of Squared Deviations	.35
Average Slope	-.50
Length	.99

Figure 1

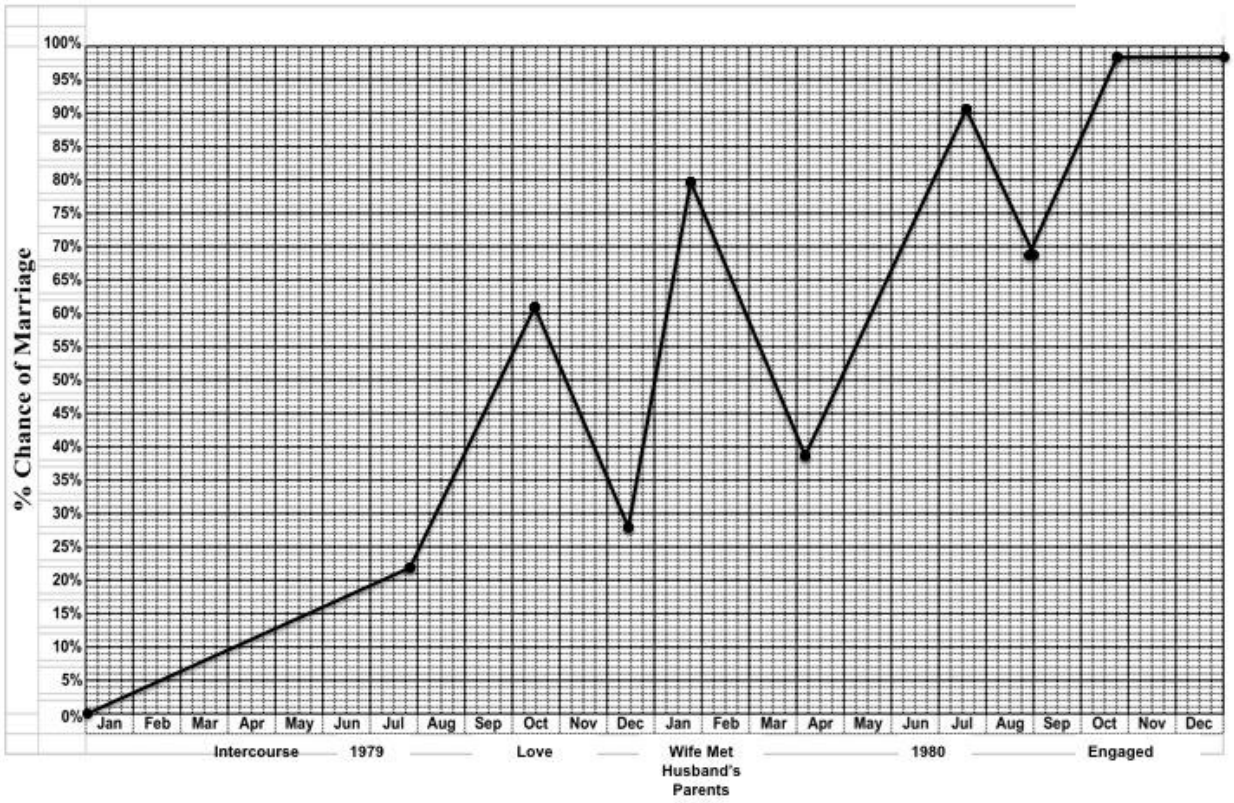
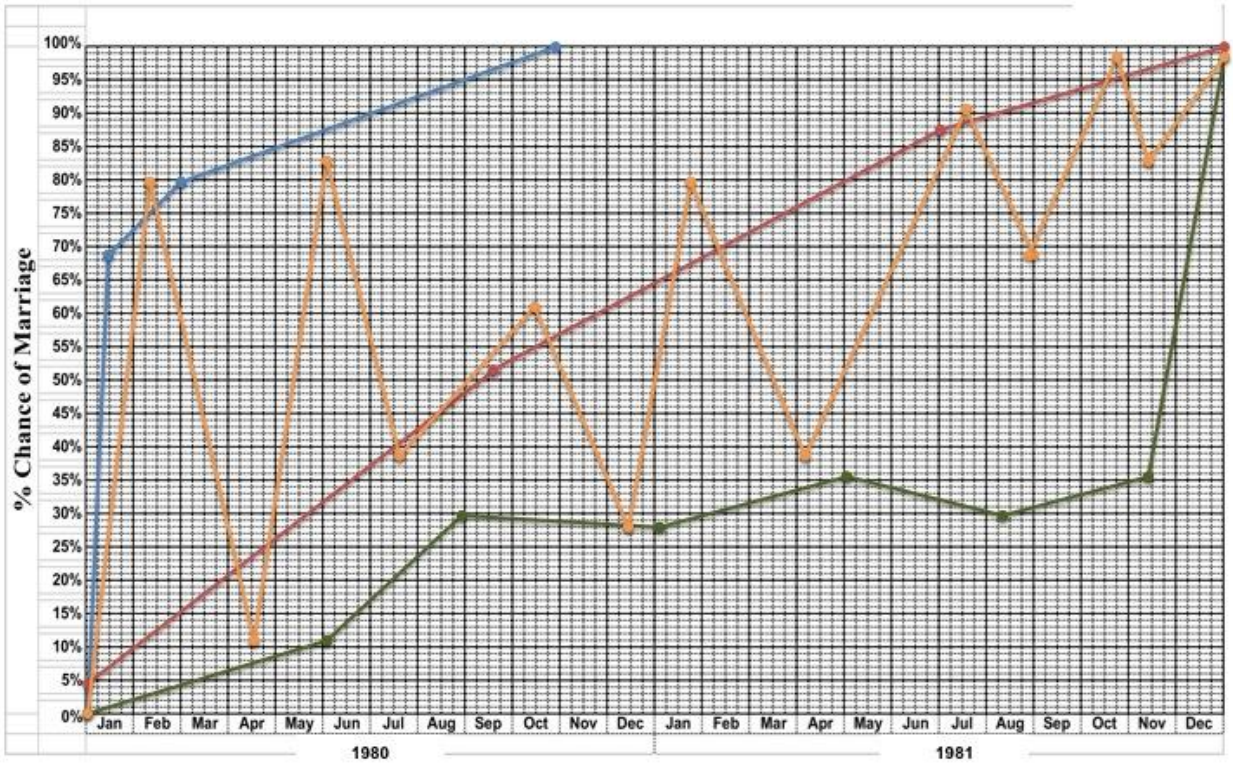

% Chance of Marriage
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Intercourse
1979
Love
Wife Met Husband's Parents
1980
Engaged

Figure 2


% Chance of Marriage
100%
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25%
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15%
10%
5%
0%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1980
1981

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