The importance of using SEM when studying multiple dimensions of marital satisfaction: Measurement invariance across relationship length and gender

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THE IMPORTANCE OF USING SEM WHEN STUDYING MULTIPLE DIMENSIONS OF MARITAL SATISFACTION: MEASUREMENT INVARIANCE ACROSS RELATIONSHIP LENGTH AND GENDER

by

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A dissertation submitted to the faculty of

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in partial fulfillment of the requirements for the degree of

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This dissertation has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

Date Thomas B. Holman PhD, Chair

Date Dean M. Busby PhD

Date Jason Carroll PhD

Date Alan Hawkins PhD

Date Jeremy B. Yorgason PhD
As chair of the candidate’s graduate committee, I have read the dissertation of Eric Walker in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

Thomas B. Holman  
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ABSTRACT

The importance of using SEM when studying multiple dimensions of marital satisfaction: Measurement invariance across relationship length and gender

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Doctor of Philosophy

Satisfaction is one of the most common dependent variables in the research of adult intimate relationships. Research has demonstrated that length of time married and sex of participants influence the characteristics of marriage, yet little research has been done to determine the characteristic changes in relationship satisfaction over time and across sexes. A review of theory and research suggests both the manners and specific items of satisfaction that vary between groups. RELATE data was used to uncover significant differences in the importance of specific items of marital satisfactions between groups based on relationship length, and between husbands and wives.
ACKNOWLEDGEMENTS

I would like to thank the members of my committee, especially Drs Yorgason and Holman for major sacrifices of their limited time and their expertise freely offered and kindly given to help and support me in this effort. Particular thanks and recognition must be given to my wife and our children for putting up with me, the time spent, frustrations expressed, and craziness experienced during this pursuit. I am grateful for the members of my family of origin, alive and passed on, for their confidence in me and encouragement expressed in many different ways. Finally, and above all, I want to express my appreciation to a God in Heaven who has supported our family for many years, has never left us alone, and has freely reminded us of what is most important and ultimately possible when life’s challenges seem too big. Thank you.
Marital Satisfaction Invariance across Groups of Time Married and Sexes:

Testing the Hypothesis

In a world where people come and go like “ships that pass in the night” (Complete Poetical Works, 1993, p.274), the vast majority of individuals (Buss & Schmitt, 1993) eventually choose to pull up alongside another ship and drop anchor in the form of marriage. Like ships, stable relationships between people require an anchor or bond to maintain a stable position side by side. A reasonable question is “what are committed intimate relationships of today anchored to?”

Over 100 years ago, one researcher listed “attachment between husband and wife” as a key characteristic of marriage (Le Play, 1897). Have researchers since been able to define more clearly what this attachment or anchor is? From the amount of attention and importance that satisfaction in relationships has been given in the research of adult intimate relations over past decades (Bradbury, Fincham & Beach, 2000; Durodoye, 1997; Fowers, 2000; Funk & Rogge, 2007; Hawkins, Fowers, Carroll, & Yang, 2007; Hicks & Platt, 1970; Spanier & Lewis, 1980) it appears that satisfaction is a major part of what anchors two people together in marriages today. Some perspectives of marriage research “have defined the good marriage predominantly in terms of spousal satisfaction and relationship stability” (Carroll, Knapp, & Holman, 2005, pp. 272-273). Therefore perceptions of marital satisfaction must be accurately understood. This requires that satisfaction is accurately measured and correctly interpreted across groups classified by different lengths of marriage and sex of participants.

Webster’s Dictionary defines satisfaction as: 2a: fulfillment of a need or want 2b: the quality or state of being satisfied (contentment, to make happy, to gratify to the full,
Importance of SEM When Studying Marital Satisfaction

appease) (1990, p. 1044). Satisfaction in the context of this paper applies to the concept of marriage fulfilling a want or need, being content, happy, and gratified with the marriage relationship and partner.

Satisfaction formed a foundation for early research of marriage (Carroll, Knapp, & Holman, 2005; Stanley, 2007). In the review of “Marital Satisfaction” research from the 1990’s, Bradbury et al. suggest that the “centrality” of marital satisfaction in “individual and family wellbeing” justifies its study; and a need for better understanding is demonstrated by “the sheer magnitude of this work” (2000, p. 964).

The purpose of this study is to test for invariance of specific satisfaction items across different groups of married couples. Measures of satisfaction are frequently used and interpreted homogeneously for all married partners, men and women, newlyweds and couples celebrating their 50th anniversary. This requires an assumption of invariance, that interpretations of scores can be applied uniformly across all spouses. However, this assumption does not account for the variations that exist between groups (Buss et al., 1990; Christensen & Miller, 2006; Henry & Miller, 2004; Henry, Miller, & Giarrusso, 2005). There has been no research to substantiate the hypothesis of invariance. In fact, past research has found evidence that some commonly used satisfaction measures demonstrate poor “precision in assessing satisfaction” (Funk & Rogge, 2007, p. 572) Therefore it is important to the field of marital studies to test for invariance among specific items of marital satisfaction across different groups based on length of marriage between husbands and wives.

To test this assumption empirical evidence was reviewed regarding variations in the importance and interpretations of specific satisfaction items related to length of time
married and sex of participants. This was followed by a review of researchers’ use of statistical methods to evaluate the specific satisfaction items as related to adult intimate relationships, including strengths and criticisms of the methods as well as issues to consider. Finally, an analysis of six satisfaction variables was completed to test measurement equivalence using two statistical methods between male and female partners across length of time married.

This study was not meant to be an exhaustive analysis of all possible items of satisfaction, nor all possible groups in adult intimate relationships. This analysis has not suggested how each group interprets the specific satisfaction items, only the variations in the strength of the relationships between items of satisfaction and a latent measure of satisfaction as well as a scale of marital stability. The purpose of this study is not to challenge the status of marital satisfaction in the study of marriage and relationships, but rather to test or challenge the hypothesis that satisfaction scores between groups such as length of marriage and sexes can be interpreted the same.

Variations in Satisfaction

Variations between groups include differences in the level of importance placed on specific satisfaction items (Guttmann & Lazar, 2004). This means that many couples can relate to the same specific items of satisfaction, but the level of importance among individuals within the relationship will vary. Davey and Szinovacz (2004) suggest a need for research on changes in the construct of marital quality across “subgroups” such as sexes, or pre/post major transitions because “little research has considered the importance of” (p.434) changes in construct (see Appendix A for a more detailed review of group differences).
Length of Time Married

Can marital satisfaction be measured and interpreted the same whether a couple has been married six days, six months, six years, or six decades? Two well known principles of marital satisfaction are (1) marital satisfaction “is almost universally high at the time of marriage” (Halford, Lizzio, Wilson, & Occhipinti, 2007, p.185), but decreases with age or over time (Davey & Szinovacz, 2004; Halford et al., 2007; Kurdek, 1999; VanLaningham, Johnson, & Amato, 2001); and (2) marital satisfaction represents a stronger impact on stability than any other variable (Karney & Bradbury, 1995). This suggests that marital satisfaction will decrease, especially in the first 10 years of marriage (Kurdek, 1999), which will lead to a decrease in marriage stability (Previti & Amato, 2003). Divorce data, however, does not support this connection because divorce rates decline the longer couples are married (Levenson, Carstensen, & Gottman, 1993). This incongruity of hypotheses requires explanation.

One possible explanation for this contradiction is that characteristics of satisfaction change over the course of marriage and current satisfaction scales do not capture those changes. For example, some specific areas of satisfaction may be less relevant to older couples, whereas other areas germane to older couples may not be included in traditional satisfaction measures (Clements & Swensen, 1999; Fouquereau & Baudoin, 2002).

It can be problematic to assume equal interpretation of satisfaction scores when comparing different groups such as the very old and the very young when the effects seem inconsistent across groups (Johnson, White, Edwards, & Booth, 1986). As was suggested by Bradbury et al. (2000), we may not be able to accurately interpret
satisfaction scores for two different groups without considering the context of the current scores. Since “few theories have focused directly on relationship change, and the predictions about how love and related phenomena should change over time” (Sprecher, 1999, p.46), we have “little understanding how the relationship between intimacy and relationship satisfaction varies according to the length of the relationship” (Moore et al., 2001, p36). At this point we are left with relatively few studies which examine changes with time.

Christensen and Miller (2006) found that significantly more individuals reporting problems with communication had been married more than 15 years. In the same study participants married less than 15 years more frequently, but not significantly, reported problems with affection. In addition, couples older than 65 years of age reported that intimacy and personality were less important in their relationships than couples younger than 65 (Henry et al., 2005). However, household concerns and leisure activities were more of a struggle for the older couples (Henry et al., 2005). While the differences may not be large, the importance of specific relational items and their ranking as priorities varies with age (Henry & Miller, 2004; Henry et al., 2005; Levenson, Cartensen, & Gottman, 1993).

**Between Males and Females**

Husbands’ and wives’ reports of marital satisfaction are significantly associated (Kearns & Leonard, 2004), yet the groups most commonly identified as different were males and females (Christensen & Miller, 2006; Davey & Szinovacz, 2004; Hendrick, Hendrick, Foote, & Slapion-Foote, 1984; Henry & Miller, 2004; Henry et al., 2005). For example, women tend to rank communication (Christensen & Miller, 2006; Henry &
Miller, 2004) and money or financial security (Buss et al., 1990; Christensen & Miller, 2006) as higher priorities than men. In comparison to the communication priority of women, no men reported wanting more listening from their wives (Christensen & Miller, 2006).

Men tended to rank sexual relations (Christensen & Miller, 2006; Guo & Huang, 2005) and problems with in-laws (Henry & Miller, 2004) as higher priorities than women. In fact, regarding sexual relations, Christensen and Miller reported that only one female participant in their study reported the desire for more sexual relations compared to men who on average rated sexual relations (desire for more sex) as the second most serious problem. While the degree of division between men and women’s prioritizing of sex varied among studies, there were no studies located in which women reported sexual relations as a higher priority than men. This is particularly significant to take into account when the results of the study by Liu (2003) are considered. Liu reported that over time, women tend to be less satisfied with sexual relations, yet as previously stated they do not list it as a serious problem.

One conclusion of the combined results of these studies suggests that while women tend to be less satisfied with sexual relations over time, this particular area is less influential towards their overall relational satisfaction and women are therefore less inclined to associate sexual relations with overall relational satisfaction. Another response more frequently reported by men was to say that there was nothing they wanted to change (Christensen & Miller, 2006; Henry et al., 2005), suggesting husbands have fewer perceptions of problems compared to their wives. It may be that men and women
have somewhat different anchors that keep them together (refer to Appendix B for a review of theory regarding the development of satisfaction in relationships).

Prior research has reported that wives more frequently serve as relationship barometers (Denton, Burleson, & Sprenkle, 1994). This suggests that wives may have a higher sensitivity to marital relationship characteristics, including marital satisfaction. Therefore, wife satisfaction scores may be more indicative and/or sensitive to subtler marital characteristics and may likely demonstrate stronger relationships with other marital measures. For example, wives satisfaction may be more influenced by husbands’ behaviors than husbands’ satisfaction by wives’ behaviors (Kurdek, 1995; Weigel & Ballard-Reisch, 1999a).

**Use of Satisfaction in Research**

Satisfaction in the context of relational research seems to share general overarching positive concepts such as relational “rewards” (Previti & Amato, 2003). However, in the field of family studies there is no agreed upon definition of marital satisfaction, nor is satisfaction the only term used to describe the general concept of relationship appraisal (Johnson et al., 1986). While the consumer of relational research can expect frequent exposure to the term “satisfaction”, it is likely that many or most references will use different definitions or characterizations (Johnson et al., 1986). The terms “satisfaction” and “happiness” are often used synonymously (Johnson et al., 1986). Occasionally researchers have used “satisfaction” and “quality” interchangeably (Gallo, Troxel, & Kuller, 2003; Rhoden, 2003) presenting the assumption that the two terms represent the same concept.
Others refer to marital quality as a combination of marital satisfaction and stability, taking “into account whether or not a marriage has remained intact, and if it has, how satisfactory it is to both spouses” (Kinnunen & Pulkkinen, 2003, p. 223). Taking it further, others have suggested that satisfaction is a major component of quality along with, but separate from stability and other measures of interactions, disagreements, and problems (Bradbury et al., 2000; Johnson et al., 1986). This demonstrates a shift from the 1970’s when quality and stability, while related, were considered different enough to be separated in the decade review (Spanier & Lewis, 1980).

By far the most commonly used manner for assessing satisfaction is through an accumulation of questions uniformly combined into a scale. This type of scale is referred to as an “unweighted scale.” The two most common (Funk & Rogge, 2007) scales for satisfaction are the 32-item Dyadic Adjustment Scale (DAS) and the 15-item Marital Adjustment Test (MAT). They rely on combinations of “evaluative judgments about marital quality, as well as reports of specific behaviors and general interaction patterns” (Bradbury et al., 2000, p.973). While only 10 of the 32 items or one of the four subscales utilized by the DAS is specifically known as Dyadic Satisfaction (Messer & Reiss, 2000), but the entire DAS scale, or versions of it, are often referred to as a satisfaction scale (Leone & Hall, 2003; Moore et al., 2001). It should be noted that while the MAT has been one of the most popular assessments, there were indications a few years ago that its popularity has been decreasing (Piotrowski, 1999).

Which measurement tools are used does seem to make some difference. Twenge, Campbell, and Foster (2003) found in a meta-analysis of parenthood and marital satisfaction that measures such as the DAS yielded higher effect sizes in the decrease of
satisfaction compared to single-item measures. Their interpretation was that scales such
as the DAS “are more valid and reliable…and thus have more power to discriminate
between” (p.579) different groups (see Appendix C for a more detailed review of
characterizations of satisfaction in the literature).

Specific Items of Satisfaction

Marital satisfaction is frequently conceptualized as satisfaction with specific
aspects of marriage. Feeling love (Previti & Amato, 2003; Rhoden, 2003; Skinner, Bahr,
& Crane, 2002) and physical intimacy (Fields, 1983; Kearns & Leonard, 2004;
O’Rourke, 2005; Perren, von Wyl, Burgin, Simoni, & von Klitzing, 2005) are common
specific aspects or items of relational satisfaction. Concepts such as love can be divided
into multiple sub-concepts that represent the larger concept of love (Gagnon, Hersen, &
Kabacoff, 1999; Hendrick et al., 1984), but this study will not go into the sub-concepts of
each item of satisfaction.

Conflict management or conflict resolution (Abela, Frosh, & Dowling, 2005;
Buunk, & Ybema, 2003; Kinnunen & Pulkkinen, 2003; Perren et al., 2005; Proulx,
Helms, & Payne, 2004; Watson, Hubbard, & Wiese, 2000), and communication (Abela et
al., 2005; Gallo, Troxel, & Matthews, 2003; Perren et al., 2005; Proulx et al., 2004;
Rhoden, 2003; Tallman & Hsiao, 2004) are also important specific items to consider
(Markman, Stanley, Blumberg, Jenkins, & Whitley, 2004) when addressing satisfaction
are. Of course, there are different styles (Gottman & Silver, 1999) which fit under the
larger umbrella of conflict management and communication. This study will not examine
each style, but only the general concepts of conflict management and communication.
Equality within the relationship is another specific item which is associated with satisfaction measures (Gottman & Silver, 1999; Rabin & Shapira-Berman, 1997; Zimmerman, 2000). As with other satisfaction items, equality can be broken down further into subcomponents of division of labor, child care, earning power, and value of responsibilities (Zimmerman, 2000). For example, roles within relationships (who does what, how much is done, and is the separation equally balanced) has been frequently associated with relational satisfaction (Buunk & Mutsaers, 1999; Orgill & Heaton, 2005; O’Rourke, 2005; Utne, Hatfield, Traupmann, & Greenberger, 1984).

Satisfaction research has also used global measures of satisfaction (Broman, 2002; Tallman & Hsiao, 2004; Utne et al., 1984; Whisman, Chatav, & McKelvie, 2006). Global measures have been used alone (Schumm, Bollman, & Jurich, 2001) or in combination with specific relational item measures (Buunk & Ybema, 2003; Fincham, Garnier, Gano-Phillips, & Osborne, 1995; Neff & Karney, 2004; Stanley, Amato, Johnson, & Markman, 2006). The term “global satisfaction” is a general or overall assessment of satisfaction or perception (i.e. “How satisfied are you with your marriage, spouse, or relationship” such as the Kansas Marital Satisfaction Scale).
Methods

The purpose of the analysis of data was to explore if six items of relationship satisfaction equally represent different groups based on sex, and lengths of marriage. The null hypothesis proposed that six items of satisfaction equally measured satisfaction and predicted marital stability for the groups of husbands and wives irrespective of time married. Failure to reject the null hypothesis suggested that all groups reported similar relationships between all specific satisfaction items and other measures. Rejection of the null hypothesis indicated that some, or all, of the comparison groups significantly differed in how they responded to, valued, and incorporated the specific items of satisfaction. This research was important to ascertain the equivalence or lack thereof among the six satisfaction items outlined in the literature review (see Appendix D for a more thorough review of satisfaction methodology in research literature).

Participants

The cross-sectional data came from the RELATionship Evaluation (RELATE), a survey used to measure couple relationship quality. The RELATE inventory included responses from both partners (Busby, Holman, & Taniguchi, 2001). Responses were collected from 10,061 couples (20,122 individuals) in heterosexual relationships from 1999–2007 via the Internet as part of college family studies or sociology classes, searches of the World Wide Web, or at the request of a professional therapist or clergy.

From the total group of participants, all RELATE participants that did not identify themselves as currently married were eliminated. Some couples reported discrepancies in relationship status such as one partner reporting they were engaged and the other reporting that they were married. Only couples that agreed on relationship status were
retained. In order to control for potential differences between first and second marriages, only participants in which both couples reported current relationship as “first marriage” were retained in this study.

An exploration of missing data revealed two patterns. The first pattern observed among the sample was that more males did not answer satisfaction questions compared to females. For the six satisfaction questions, 281 males failed to respond to all six questions, whereas only 81 females did not answer all six of the satisfaction questions. The second pattern observed was of the participants who failed to answer at least one of the satisfaction questions, 96% of the 281 males and 84% of the 81 females failed to respond to all six questions. Since each satisfaction question is of central importance to this analysis it was unacceptable to allow AMOS imputation methods to assume likely responses to the vast majority of the variables of interest. Therefore, additional couples were removed from the sample if there were missing data on any of the six satisfaction measures used in this analysis. After the missing and conflicting data were removed there were 1703 married couples remaining. The majority of participants had completed some college. There was a general trend of having received more education the longer a couple had been married. Ninety-seven percent of participants reported their race as Caucasian. The remaining participants reported their race as African (2%), Asian (1%), and Latino, other race, American Indian, and biracial (<1%).

Measurements

The RELATE self-report inventory is a 271 item questionnaire designed to evaluate the relationship between partners in romantic relationships such as dating, engaged, cohabitating, or married. Survey questions address topics from participants’
family of origin, individual characteristics, partner characteristics, and couple interaction and relationship factors. The RELATE inventory contains individual and matched responses from both partners and has been tested for reliability and validity (Busby et al., 2001). Matched couple data was used to test for gender differences as well as control for partner effects.

关系长度

关系长度被评估通过询问“你们和你的伴侣已经结婚多长时间？”回答选项包括“0到3个月”，“4到6个月”，“6到12个月”，“1到2年”，“3到5年”，“6到10年”，“11到20年”，和“超过20年。”没有先前的研究可用以指示具体和一致的时间结婚分组标准。因此，为了充分利用RELATE数据，所有八个组被单独保留而不是合并。组大小如下，第一组（结婚0到3个月=118对），第二组（结婚4到6个月=85对），第三组（结婚6到12个月=128对），第四组（结婚1到2年=337对），第五组（结婚3到5年=265对），第六组（结婚6到10年=242对），第七组（结婚11到20年=267对），和第八组（结婚超过20年=261对）。

特定的满意度

六个变量被用于解决特定的满意度。更高数字反映了更高的自我报告的满意度在每个测量。满意度被评估通过询问参与者对他们的满意度与“物理亲密性”，“你感受到的爱”，“如何解决冲突”，“你沟通的质量”，和“你体验的相互平等”的满意度。回答包括一个五点

尺度。
Likert scale of very dissatisfied, dissatisfied, neutral, satisfied, and very satisfied. The sixth measure represents global marital satisfaction and was measured by asking “how satisfied are you with...your overall relationship with your partner?”

*Relationship stability.*

The relationship stability scale comprised the inverse of three frequency variables; “How often have you thought your relationship was in trouble?”; “How often have you and your partner discussed ending your relationship?”; and “How often have you broken up or separated and then gotten back together?” Higher scores represented higher stability. The wording used in the questions addresses a historical perspective of relationship stability not a future expectation of stability.
Analysis and Results

Descriptive statistics of marital satisfaction

The analyses included examination of satisfaction items and stability scales for males and females in each relationship length group, and diagnostic analyses of co-linearity between predictors. Mean satisfaction and stability scores were analyzed using t-tests to examine gender differences, and analysis of variance (ANOVA) tests to examine relationship length group differences. Bivariate correlations included analysis of husband variables and wife variables, as well as partner correlations (see Table 1).

Two patterns were observed from mean comparisons. First, mean satisfaction scores generally decreased as length of marriage increased, with couples married less than three years (groups one, two, three, and four) typically reporting higher satisfaction than those married three years or more. The second pattern that emerged was that husbands and wife satisfaction scores were statistically different in 10 out of 48 possible scores (in five cases husband means were higher and in five cases wife means were higher). More specifically, wives tended to report higher Physical Intimacy and Relationship Equality across most marriage length groups, whereas husbands in later groups of time married (groups seven and eight) reported higher satisfaction with no inclination towards specific dimensions of satisfaction. These gender differences suggest that wives may be more satisfied early on in marriage, but husbands generally become more satisfied with time. Also, wives’ satisfaction tended to decreases more quickly than husbands and eventually wives reported lower marital satisfaction.
Table 1. Male and Female satisfaction and stability means, standard deviations, and significant group differences

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
<th>Wife/Husband</th>
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<td>1 M</td>
<td>4.22 / 4.20&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.98 / .97</td>
<td>4.75&lt;sup&gt;b&lt;/sup&gt; / 4.60&lt;sup&gt;*a&lt;/sup&gt;</td>
<td>3.88&lt;sup&gt;b&lt;/sup&gt; / 3.81&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.40&lt;sup&gt;*a&lt;/sup&gt; / 4.23&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.02&lt;sup&gt;a&lt;/sup&gt; / 3.94&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.65&lt;sup&gt;a&lt;/sup&gt; / 4.64&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.32&lt;sup&gt;a&lt;/sup&gt; / 4.24&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.71&lt;sup&gt;*a&lt;/sup&gt; / 4.71&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>SD</td>
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<td>2 M</td>
<td>4.15&lt;sup&gt;*a&lt;/sup&gt; / 4.13&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>.75 / .90</td>
<td>4.65&lt;sup&gt;ab&lt;/sup&gt; / 4.51&lt;sup&gt;*a&lt;/sup&gt;</td>
<td>3.69&lt;sup&gt;a&lt;/sup&gt; / 3.71&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.24&lt;sup&gt;*a&lt;/sup&gt; / 4.06&lt;sup&gt;*ab&lt;/sup&gt;</td>
<td>3.80&lt;sup&gt;ab&lt;/sup&gt; / 3.72&lt;sup&gt;ab&lt;/sup&gt;</td>
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<td>SD</td>
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<td>3.55&lt;sup&gt;ab&lt;/sup&gt; / 3.52&lt;sup&gt;ab&lt;/sup&gt;</td>
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<td>4.38&lt;sup&gt;b&lt;/sup&gt; / 4.34&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.52&lt;sup&gt;ab&lt;/sup&gt; / 3.48&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>4.06&lt;sup&gt;*ab&lt;/sup&gt; / 3.93&lt;sup&gt;*ab&lt;/sup&gt;</td>
<td>3.54&lt;sup&gt;bc&lt;/sup&gt; / 3.59&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>4.38&lt;sup&gt;a&lt;/sup&gt; / 4.36&lt;sup&gt;abcd&lt;/sup&gt;</td>
<td>3.97&lt;sup&gt;b&lt;/sup&gt; / 3.91&lt;sup&gt;*b&lt;/sup&gt;</td>
<td>4.50&lt;sup&gt;*b&lt;/sup&gt; / 4.49&lt;sup&gt;bc&lt;/sup&gt;</td>
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<td>SD</td>
<td></td>
<td></td>
<td>.89 / .85</td>
<td>1.08 / 1.05</td>
<td>.96 / .92</td>
<td>1.14 / 1.02</td>
<td>.82 / .80</td>
<td>.79 / .74</td>
<td>.63 / .60</td>
<td></td>
</tr>
<tr>
<td>5 M</td>
<td>3.44&lt;sup&gt;bc&lt;/sup&gt; / 3.31&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.18 / 1.18</td>
<td>3.99&lt;sup&gt;b&lt;/sup&gt; / 4.00&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.21&lt;sup&gt;b&lt;/sup&gt; / 3.29&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.74&lt;sup&gt;bc&lt;/sup&gt; / 3.71&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>3.24&lt;sup&gt;cd&lt;/sup&gt; / 3.36&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>4.03&lt;sup&gt;b&lt;/sup&gt; / 4.07&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3.61&lt;sup&gt;c&lt;/sup&gt; / 3.63&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.27&lt;sup&gt;d&lt;/sup&gt; / 4.29&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td>1.10 / .94</td>
<td>1.18 / 1.07</td>
<td>1.08 / .96</td>
<td>1.26 / 1.12</td>
<td>1.06 / .94</td>
<td>.94 / .82</td>
<td>.74 / .70</td>
<td></td>
</tr>
<tr>
<td>6 M</td>
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<td>1.19 / 1.25</td>
<td>3.64&lt;sup&gt;b&lt;/sup&gt; / 3.74&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.07&lt;sup&gt;c&lt;/sup&gt; / 3.08&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.58&lt;sup&gt;c&lt;/sup&gt; / 3.61&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3.02&lt;sup&gt;c&lt;/sup&gt; / 3.11&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3.73&lt;sup&gt;b&lt;/sup&gt; / 3.81&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3.40&lt;sup&gt;c&lt;/sup&gt; / 3.41&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.06&lt;sup&gt;c&lt;/sup&gt; / 4.10&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td>1.20 / 1.16</td>
<td>1.19 / 1.13</td>
<td>1.14 / 1.03</td>
<td>1.24 / 1.11</td>
<td>1.07 / 1.07</td>
<td>.96 / .90</td>
<td>.80 / .75</td>
<td></td>
</tr>
<tr>
<td>7 M</td>
<td>3.46&lt;sup&gt;bc&lt;/sup&gt; / 3.23&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.12 / 1.19</td>
<td>3.64&lt;sup&gt;c&lt;/sup&gt; / 3.73&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.03&lt;sup&gt;c&lt;/sup&gt; / 3.15&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.52&lt;sup&gt;c&lt;/sup&gt; / 3.58&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.98&lt;sup&gt;d&lt;/sup&gt; / 3.15&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>3.77&lt;sup&gt;b&lt;/sup&gt; / 3.87&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3.40&lt;sup&gt;c&lt;/sup&gt; / 3.45&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.08&lt;sup&gt;d&lt;/sup&gt; / 4.08&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td>1.20 / 1.16</td>
<td>1.16 / 1.10</td>
<td>1.18 / 1.00</td>
<td>1.25 / 1.07</td>
<td>1.17 / 1.01</td>
<td>1.00 / .90</td>
<td>.73 / .68</td>
<td></td>
</tr>
<tr>
<td>8 M</td>
<td>3.36&lt;sup&gt;*c&lt;/sup&gt; / 3.33&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.21 / 1.24</td>
<td>3.68&lt;sup&gt;cd&lt;/sup&gt; / 3.82&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>3.03&lt;sup&gt;c&lt;/sup&gt; / 3.25&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>3.62&lt;sup&gt;c&lt;/sup&gt; / 3.68&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>2.98&lt;sup&gt;*a&lt;/sup&gt; / 3.16&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>3.72&lt;sup&gt;b&lt;/sup&gt; / 3.90&lt;sup&gt;*d&lt;/sup&gt;</td>
<td>3.40&lt;sup&gt;c&lt;/sup&gt; / 3.52&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.10&lt;sup&gt;*b&lt;/sup&gt; / 4.16&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td>1.27 / 1.13</td>
<td>1.24 / 1.07</td>
<td>1.15 / .97</td>
<td>1.22 / 1.13</td>
<td>1.24 / 1.07</td>
<td>1.04 / .93</td>
<td>.68 / .64</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.97&lt;sup&gt;<em>&lt;/sup&gt; / 3.52&lt;sup&gt;</em>&lt;/sup&gt;</td>
<td>1.16 / 1.19</td>
<td>4.04 / 4.06</td>
<td>3.29&lt;sup&gt;<em>&lt;/sup&gt; / 4.34&lt;sup&gt;</em>&lt;/sup&gt;</td>
<td>3.83 / 3.80</td>
<td>3.30&lt;sup&gt;<em>&lt;/sup&gt; / 3.49&lt;sup&gt;</em>&lt;/sup&gt;</td>
<td>4.07&lt;sup&gt;<em>&lt;/sup&gt; / 4.11&lt;sup&gt;</em>&lt;/sup&gt;</td>
<td>3.70 / 3.70</td>
<td>4.30 / 4.32</td>
<td></td>
</tr>
</tbody>
</table>

M = Mean of group responses; SD = Standard deviation of group responses; Significant differences between husbands and wives within a given relationship length group and satisfaction domain are indicated by *. Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in superscripts a, b, c, and d.
Bivariate correlations of all variables in the study were estimated for husbands and wives separately as well as across partners within each relationship length group (see Tables 2-8 in Appendix F). Three patterns were observed from the 728 correlations. First, while correlations ranged from weak to strong, individual correlations (e.g., wife Love Felt correlated with wife Conflict Resolution, or husband Equality in Relationship correlated with husband Communication) were generally stronger (mean of .54) compared to partner correlations (e.g., wife Love Felt correlated with husband Love Felt; mean of .44). Second, both individual and couple correlations increased across relationship length groups. Third, the increase of partner correlations across relationship length groups appeared greater than the increase of individual correlations. Individual correlations increased 24% from an average .50 for group one to .62 for group eight. On the other hand, partner correlations increased 63% from an average of .32 for group one to .52 for group eight.

Group two demonstrated a distinctive pattern of frequently lower correlations than all other groups. The lower correlations were most obvious with Physical Intimacy correlations. The pattern of lower correlation for group two applied to both spouses, but more notably for wives. An analysis of frequencies for satisfaction items revealed a pattern of grouping toward the middle ranges. For example, group two wives responses to satisfaction with Physical Intimacy demonstrated a lower percentage of “very dissatisfied” and “dissatisfied” than any other group, as well as a lower percentage of “very satisfied” responses than groups one, three and four. On the other hand, group two reported a higher percentage of “satisfied” responses than any other group, thus creating a steeper bell curve than any other group.
Scale properties and predictive validity of marital satisfaction

The next step in examining relationship satisfaction was to explore measurement properties of computed scales, as well as predictive validity of the scales. First, trends in scale reliability (Cronbach’s coefficient alphas) were examined across relationship length groups for husbands and wives. Alpha coefficients indicated appropriate reliability for both partners across all groups (Husbands alpha for group 1= .87, group 2= .84, group 3= .88, group 4= .87, group 5= .88, group 6= .88, group 7= .91, and group 8= .92. Wife alpha for group 1= .88, group 2= .74, group 3= .89, group 4= .88, group 5= .90, group 6= .90, group 7= .92, and group 8= .93.). Alpha coefficients tended to be greater in groups of couples married longer periods of time. Although the scale had good reliability in all groups, when the Physical Intimacy item was removed from the scale, groups married less than 10 years had a higher alpha score.

Second, to establish predictive validity, the marital satisfaction scale was introduced into a structural equation model (AMOS, 2007) predicting the related construct of marital stability. In order to account for actor and partner effects, a saturated model was utilized (see Figure 1). Path estimates, correlations, and dependent variable $R^2$ for husbands and wives were analyzed for comparison of the eight relationship length groups (see Appendix E for methodological terms and definitions).
Structural invariance across relationship length groups and between husbands and wives was tested using nested model comparisons. Path estimates were constrained to be equal across groups (e.g., path A was constrained to be equal across all eight relationship length groups), and between wives and husbands (e.g., path A in group one was constrained to be equal with path B in group one). The constrained models were compared with models wherein paths were allowed to be freely estimated. Chi² difference tests were used to determine structural variations across groups. Nested model comparisons indicated that when paths were constrained to be equal across all relationship length groups the model fit decreased suggesting that paths should not be constrained (nested model comparison Chi² = 46.68, df = 28, p = .015). Nested model comparisons indicated that when paths were constrained to be equal between spouses the model fit did not significantly decrease suggesting that husband and wife paths could be constrained to be equal (nested model comparison Chi² = 23.60, df = 16, p = .099), and adequately fit with the data (NFI = .99, CFI = .99, and RMSEA = .02).
As seen in Table 9, all of the actor and partner paths (A, B, C, and D) were significant as were all of the partner correlations (E and F). All actor paths were moderate in strength (between .43 and .58 standardized) and all partner paths were modest (between .17 and .26 standardized).

Because paths could not be constrained across all relationship length groups, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups. Critical values greater than 1.96 or less than -1.96 reflect significantly different variations at $p < .05$ level (University of Texas at Austin, n.d.). As seen in Table 9, actor paths A and B were less predictive for newlywed husbands and wives compared to couples married longer. Whereas partner paths C and D were lower among couples in group eight (married more than 20 years) than couples married shorter lengths of time. Related to differences in regression paths, the amount of variance explained in stability appears to differ across groups, with husband and wife stability in group one having the lowest $R^2$.

Significant differences were also indicated in couple correlations of marital satisfaction and stability (E and F). Spouse correlations of satisfaction and stability (E and F) demonstrated similar patterns with increases from group one to groups four, five, and six. Group six (couples married six to ten years) demonstrated the highest correlations of husband and wife stability (F) with a significant decrease in correlation strength for couples married longer. Whereas husband and wife correlation of satisfaction (E) remained strong with no significant decrease to groups married longer.
Table 9. Marital Satisfaction Standardized (Unstandardized in parentheses) Path Estimates, and Marital Stability $R^2$ with Husband and Wife Paths Constrained to be Equal.

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor Path (A)</th>
<th>Husband Actor Path (B)</th>
<th>Wife to Partner Path (C)</th>
<th>Husband to Partner Path (D)</th>
<th>Correlation Satisfaction Scales (E)</th>
<th>Correlation Stability Scales (F)</th>
<th>Wife Stability $R^2$</th>
<th>Husband Stability $R^2$</th>
<th>$R^2$</th>
<th>$R^2$</th>
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<tbody>
<tr>
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<td>.47(.32)$^a$</td>
<td>.50(.32)$^a$</td>
<td>.22(.13)$^{ab}$</td>
<td>.20(.13)$^{ab}$</td>
<td>.46(.21)$^a$</td>
<td>.34(.04)$^a$</td>
<td>.34</td>
<td>.40</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>.47(.44)$^{bc}$</td>
<td>.57(.44)$^{bc}$</td>
<td>.18(.17)$^{ab}$</td>
<td>.23(.17)$^{ab}$</td>
<td>.66(.22)$^a$</td>
<td>.66(.08)$^{bc}$</td>
<td>.42</td>
<td>.49</td>
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<td>.57(.44)$^{bc}$</td>
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<td>.25(.20)$^b$</td>
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<td>.55</td>
<td>.55</td>
<td></td>
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</tr>
<tr>
<td>4</td>
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<td>.52(.43)$^{bc}$</td>
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<td>.20(.17)$^b$</td>
<td>.69(.40)$^b$</td>
<td>.65(.13)$^{bc}$</td>
<td>.49</td>
<td>.48</td>
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<tr>
<td>5</td>
<td>.57(.45)$^b$</td>
<td>.52(.45)$^b$</td>
<td>.22(.17)$^{ab}$</td>
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<td>.72(.55)$^c$</td>
<td>.56(.14)$^d$</td>
<td>.52</td>
<td>.48</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
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<td>.26(.21)$^b$</td>
<td>.24(.21)$^b$</td>
<td>.70(.59)$^c$</td>
<td>.67(.23)$^f$</td>
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</tr>
<tr>
<td>7</td>
<td>.58(.42)$^{bc}$</td>
<td>.55(.42)$^{bc}$</td>
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<td>.73(.65)$^c$</td>
<td>.61(.15)$^d$</td>
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<td>8</td>
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<td>.17(.11)$^b$</td>
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<td>.58(.13)$^{ed}$</td>
<td>.48</td>
<td>.47</td>
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</table>

Note: All shown coefficients were significant at $p < .001$. Significant differences across marriage length groups within a given satisfaction domain at $p < .05$ are indicated by differences in superscripts. These differences are based on Critical Ratios calculated on unstandardized coefficients.

Factor loadings

Scale development often includes exploring whether individual measures represent the same construct among different groups of people (Collins, Raju, & Edwards, 2000). To explore measurement invariance across the eight relationship length groups and between husbands and wives, the relationship satisfaction items were introduced into a confirmatory factor analysis (CFA) using AMOS (2007). In accordance with prior literature (Halford et al., 2007), an association between latent factors for male and female partners is assumed in this model. Variance estimates for husband and wife
latent variables were set to equal one so that all factor loading could be freely estimated (see Figure 2).

The overall CFA model fit adequately with the data ($\chi^2 = 628.71, p = .000, df = 296, CFI = .98, NFI = .96, RMSEA = .03$). Factor loadings were all higher than .40 and significant at $p < .01$, with the exceptions of group two path A which did not load on the latent factor, and group two path G which had a factor loading of .36 (see Table 10). This is consistent with the Cronbach’s Alpha analysis which suggested that when Physical Intimacy was included, scale reliability for groups married six months or less decreased.

Measurement invariance across relationship length groups and between husbands and wives was tested, as with the analysis of marital scale predictive validity, using nested model comparisons. Factor loadings were constrained to be equal across groups and between spouses, and then compared with models wherein loadings were allowed to be freely estimated. Chi$^2$ difference tests were used to determine measurement variations across groups. Nested model comparisons again indicated that when loadings were constrained to be equal across all relationship length groups the model fit decreased suggesting that loadings should not be constrained to be equal across groups (nested model comparison $\chi^2 = 243.69, df = 84, p = .000$). Nested model comparisons between husbands and wives indicated that when loadings were constrained to be equal the model fit decreased, suggesting that loadings should not be constrained to be equal between
Figure 2. Marital Satisfaction Confirmatory Factor Analysis

Note: Covariance paths between Wife and Husband item error terms were estimated, but are not shown for diagram parsimony.
Table 10. Standardized Factor Loadings (Unstandardized Factor Loadings in parentheses) of Husband and Wife Marital Satisfaction.

<table>
<thead>
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<tr>
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<td>.73(.77)ab</td>
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<td>.86(0.91)ae</td>
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<td>.75(.86)ad</td>
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<td>.83(1.02)cd</td>
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<td>.88(1.09)ad</td>
<td>.83(.90)ac</td>
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</table>

Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in the following superscripts: a, b, c, d, e. Significant differences between specific husband and wife factor loadings within the same group are indicated with *. These differences are based on Critical Ratios calculated on unstandardized coefficients at \( p < .05 \). Capital letters A thru L associated with each factor represent paths seen in Figure 2.
spouses (nested model comparison $\chi^2 = 110.66$, df = 48, $p = .000$). Thus, although satisfaction scale predictive validity indicates structural invariance across husbands and wives, factor loading results indicate that measurement properties are different.

Because paths could not be constrained across all relationship length groups or between husbands and wives, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses. The main pattern for factor loading differences across groups involved an increase in factor loading size as group length increased (see Table 10; paths D, H, and I were exceptions to the trend). Differences in factor loadings also were examined across gender using AMOS critical ratio analysis (see Table 10). Results indicated that wife factor loadings were stronger than husband factor loadings for 10 out of the 12 item differences. Specific gender differences were found for loadings of Love Felt (group five), Equality in Relationships (groups seven and eight), Communication (groups four, five, six, and seven), and Global Satisfaction (groups five, seven and eight). Two exceptions included Physical Intimacy and Relationship Equality, in which group two husband factor loadings were stronger than wife factor loadings.

Latent variable correlations (path M in Figure 2) between husband and wife marital satisfaction were stronger for groups married longer, confirming similar trends found with individual item correlations and scale correlations. Specifically, correlations for couples in the longer marriage length groups (e.g., group eight satisfaction scale spouse correlation was standardized .72) were stronger than correlations for couples married shorter lengths of time (e.g., group one satisfaction scale spouse correlation was standardized .46).
As with correlation analysis, group two couples, most notably wives’ Physical Intimacy demonstrated a pattern of weaker factor loading. Numerous descriptive variables were analyzed to determine if group two was distinctive from other groups on any characteristics other than time married. There were slight patterns suggesting differences between group two and some other groups. Group two wives reported a slightly different configuration of religious affiliations. Comparable to groups five thru eight, 45% of group two wives identified themselves as LDS. This percentage was lower than the 61% of group one, 56% of group three and 57 percent of group four that identified themselves as LDS. Group two also reported a slightly higher mean score expressing “Sexual intercourse is the most bonding experience you can have in marriage” than the other relationship length groups, but the differences were small. No other variables were found which demonstrated differences between group two and the other groups.

*Individual item predictive relationships*

In addition to examining item factor loadings, and in accordance to the call for more research to determine “the differential predictive power of individual factors” (Fouquereau & Baudoin, 2002, p.103) for different populations, the predictive relationships between all marital satisfaction items and marital stability were explored across all relationship length groups and between spouses using SEM. A model was created in which each specific item of satisfaction for husbands and wives predicted marital stability (see Figure 3). Each of the six specific items of satisfaction was tested in a separate model to avoid problems of collinearity (inter-item correlations were moderate to strong).
Structural invariance across relationship length groups and between husbands and wives was tested for each satisfaction item using nested model comparisons. Path estimates were constrained to be equal across groups (e.g., path A was constrained to be equal across all eight relationship length groups), and between wives and husbands (e.g. path A in group one was constrained to be equal with path B in group one). The constrained models were compared with models wherein paths were allowed to be freely estimated. Chi² difference tests were used to determine structural variations across groups. Results from each model are presented below (also see Tables 11 through 16).

Figure 3. Individual Item Marital Satisfactions Structural Equation Model

*Physical Intimacy.*

Nested model comparisons of the model that included Physical Intimacy indicated that when paths were constrained to be equal across all relationship length groups the model fit decreased (nested model comparison Chi² = 45.03, df = 28, p = .02). When paths were constrained to be equal across spouses the model fit again significantly decreased (nested model comparison Chi² = 33.29, df = 16, p = .007). This suggested that paths should not be constrained to be equal across relationship length groups or between
husband and wife paths. Therefore, the best model for Physical Intimacy was a just identified model in which all paths were allowed to be freely estimated.

Because paths could not be constrained across all relationship length groups or between husbands and wives, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses. As indicated by superscripts in Table 1, wife actor and partner paths (A and C) were less predictive for newlywed wives compared to wives that had been married longer. Whereas husband actor and partner paths (B and D) were stronger for newlywed husbands compared to husbands that had been married longer. As indicated by asterisks in Table 1, gender comparisons suggested Physical Intimacy in group one was a stronger predictor of marital stability for husbands than for wives. However, spouse differences in other relationship length groups favored wife Physical Intimacy as a stronger predictor of stability than husband physical Intimacy.
Table 11. Standardized (Unstandardized in parentheses) Physical Intimacy Unconstrained Path Estimates with Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor (Path A)</th>
<th>Husband Actor (Path B)</th>
<th>Wife Partner (Path C)</th>
<th>Husband Partner (Path D)</th>
<th>Satisfaction Correlation (Path E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.23(.10)*a</td>
<td>.52(.23)*a</td>
<td>ns*</td>
<td>.33(.15)ac</td>
<td>.33(.31)abc</td>
</tr>
<tr>
<td>2</td>
<td>nsab</td>
<td>nsab</td>
<td>nsab</td>
<td>nsab</td>
<td>.36(.24)d</td>
</tr>
<tr>
<td>3</td>
<td>.51(.33)ac</td>
<td>.25(.14)ab</td>
<td>.27(.15)ac</td>
<td>nsab</td>
<td>.38(.40)bc</td>
</tr>
<tr>
<td>4</td>
<td>.32(.19)ab</td>
<td>.30(.17)ab</td>
<td>.20(.11)ac</td>
<td>.18(.11)bc</td>
<td>.48(.53)bc</td>
</tr>
<tr>
<td>5</td>
<td>.42(.27)bc</td>
<td>.31(.19)a</td>
<td>.25(.15)bc</td>
<td>.19(.12)bc</td>
<td>.48(.66)cd</td>
</tr>
<tr>
<td>6</td>
<td>.41(.28)ab</td>
<td>nsb</td>
<td>.32(.20)ac</td>
<td>nsb</td>
<td>.42(.63)cd</td>
</tr>
<tr>
<td>7</td>
<td>.38(.25)bc</td>
<td>.34(.19)a</td>
<td>.27(.16)bc</td>
<td>.28(.17)c</td>
<td>.43(.57)c</td>
</tr>
<tr>
<td>8</td>
<td>.39(.22)ac</td>
<td>.39(.20)a</td>
<td>.22(.12)ac</td>
<td>.17(.09)bc</td>
<td>.58(.87)d</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at \( p < .05 \). Significant differences between husbands and wives within a given satisfaction domain are indicated by *. Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in superscripts. These differences are based on Critical Ratios calculated on unstandardized coefficients. Path F is not reported for this model (see Table 9), but is available upon request.

*Love Felt.*

Nested model comparisons of the model that included Love Felt indicated that when paths were constrained to be equal across all relationship length groups the model fit decreased (nested model comparison \( \chi^2 = 65.58, \text{df} = 28, p < .000 \)). When paths were constrained to be equal between spouses the model fit again decreased (nested model comparison \( \chi^2 = 55.49, \text{df} = 16, p < .000 \)). This suggested that paths should not be constrained to be equal across relationship length groups or between husband and wife.
paths. Therefore the best model for Love Felt was a just identified model in which all paths were allowed to be freely estimated (see Table 12).

Table 12. Standardized (Unstandardized) Love Felt Unconstrained Path Estimates with Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor (Path A)</th>
<th>Husband Actor (Path B)</th>
<th>Wife Partner (Path C)</th>
<th>Husband Partner (Path D)</th>
<th>Satisfaction Correlation (Path E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.18(.12)^a</td>
<td>.48(.29)^a</td>
<td>ns^a</td>
<td>.40(.24)^a</td>
<td>.23(.11)^a</td>
</tr>
<tr>
<td>2</td>
<td>.55(.45)^bcd</td>
<td>.30(.22)^ab</td>
<td>.45(.38)^ab</td>
<td>ns^ab</td>
<td>.27(.11)^a</td>
</tr>
<tr>
<td>3</td>
<td>.71(.56)^*d</td>
<td>.26(.18)^ab</td>
<td>.47(.32)^ab</td>
<td>ns^b</td>
<td>.39(.27)^b</td>
</tr>
<tr>
<td>4</td>
<td>.47(.34)^*c</td>
<td>.40(.28)^a</td>
<td>.30(.20)^ab</td>
<td>.23(.17)^ab</td>
<td>.50(.38)^*bc</td>
</tr>
<tr>
<td>5</td>
<td>.50(.34)^*c</td>
<td>.39(.29)^a</td>
<td>.33(.21)^ab</td>
<td>.24(.19)^a</td>
<td>.52(.54)^*cd</td>
</tr>
<tr>
<td>6</td>
<td>.56(.37)^*c</td>
<td>.20(.13)^*b</td>
<td>.46(.29)^ab</td>
<td>.12(.08)^*b</td>
<td>.50(.68)^*ce</td>
</tr>
<tr>
<td>7</td>
<td>.46(.28)^*b</td>
<td>.47(.27)^a</td>
<td>.24(.14)^a</td>
<td>.27(.17)^ab</td>
<td>.56(.78)^f</td>
</tr>
<tr>
<td>8</td>
<td>.54(.29)^*c</td>
<td>.41(.23)^a</td>
<td>.32(.16)^a</td>
<td>.19(.11)^ab</td>
<td>.54(.78)^*de</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at \( p < .05 \). Significant differences between husbands and wives within a given satisfaction domain are indicated by *. Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in superscripts. These differences are based on Critical Ratios calculated on unstandardized coefficients. Path F is not reported for this model (see Table 9), but is available upon request.

Because paths could not be constrained across all relationship length groups or between husbands and wives, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses. Once again, wife actor and partner paths (A and C) were less predictive for newlywed wives compared to wives married longer. Whereas husband actor and partner paths (B and D) were stronger for newlywed
husbands compared to husbands married longer. Spouse differences suggested that wife satisfaction with Love Felt was consistently a stronger predictor of marital stability compared to husband satisfaction with Love Felt.

**Conflict Resolution.**

Nested model comparisons of the model that included Conflict Resolution indicated that when paths were constrained to be equal across all relationship length groups the model fit decreased (nested model comparison $\chi^2 = 54.54$, $df = 28$, $p = .002$). However, when paths were constrained to be equal across spouses the decrease in model fit was non-significant (nested model comparison $\chi^2 = 4.39$, $df = 2$, $p = .111$). Therefore, paths should not be constrained to be equal across relationship length groups, but can be between husband and wife paths, and the best model for Conflict Resolution was a model in which spouses path estimates were constrained to be equal (model fit statistics $\chi^2 = 20.34$, $df = 16$, $p = .205$, NFI = .99, CFI = .99, RMSEA = .01).

Because paths could not be constrained across all relationship length groups, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses (see Table 13). Conflict Resolution was least predictive of marital stability for couples in the three to six months of marriage. Wife and husband actor and partner paths (A, B, C, and D) were less predictive for newlywed wives compared to wives husbands married longer. This trend of increased strength with length of marriage leveled off in group five for actor paths (A and B) with no significant change compared to groups married longer, but the strength of partner paths (C and D) peaked in group six and was weaker in groups married longer.
Table 13. Standardized (Unstandardized) Conflict Resolution Path Estimates with Husband and Wife Paths Constrained to be Equal and Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor (Path A)</th>
<th>Husband Actor (Path B)</th>
<th>Wife Partner (Path C)</th>
<th>Husband Partner (Path D)</th>
<th>Satisfaction Correlation (Path E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.41(.19) \textsuperscript{ab}</td>
<td>.45(.19) \textsuperscript{ab}</td>
<td>.17(.07) \textsuperscript{a}</td>
<td>.16(.07) \textsuperscript{a}</td>
<td>.40(.38) \textsuperscript{a}</td>
</tr>
<tr>
<td>2</td>
<td>.36(.17) \textsuperscript{b}</td>
<td>.37(.17) \textsuperscript{b}</td>
<td>.25(.11) \textsuperscript{ab}</td>
<td>.24(.11) \textsuperscript{ab}</td>
<td>.67(.75) \textsuperscript{bc}</td>
</tr>
<tr>
<td>3</td>
<td>.47(.27) \textsuperscript{c}</td>
<td>.51(.27) \textsuperscript{c}</td>
<td>.29(.15) \textsuperscript{bc}</td>
<td>.27(.15) \textsuperscript{bc}</td>
<td>.41(.50) \textsuperscript{ac}</td>
</tr>
<tr>
<td>4</td>
<td>.42(.24) \textsuperscript{ac}</td>
<td>.43(.24) \textsuperscript{ac}</td>
<td>.25(.14) \textsuperscript{b}</td>
<td>.24(.14) \textsuperscript{b}</td>
<td>.55(.62) \textsuperscript{bc}</td>
</tr>
<tr>
<td>5</td>
<td>.42(.26) \textsuperscript{c}</td>
<td>.39(.26) \textsuperscript{c}</td>
<td>.33(.20) \textsuperscript{c}</td>
<td>.30(.20) \textsuperscript{c}</td>
<td>.51(.64) \textsuperscript{bc}</td>
</tr>
<tr>
<td>6</td>
<td>.37(.25) \textsuperscript{ac}</td>
<td>.37(.25) \textsuperscript{ac}</td>
<td>.26(.16) \textsuperscript{bc}</td>
<td>.23(.16) \textsuperscript{bc}</td>
<td>.62(.82) \textsuperscript{b}</td>
</tr>
<tr>
<td>7</td>
<td>.47(.29) \textsuperscript{c}</td>
<td>.47(.29) \textsuperscript{c}</td>
<td>.19(.11) \textsuperscript{ab}</td>
<td>.18(.11) \textsuperscript{ab}</td>
<td>.58(.74) \textsuperscript{bc}</td>
</tr>
<tr>
<td>8</td>
<td>.50(.27) \textsuperscript{c}</td>
<td>.45(.27) \textsuperscript{c}</td>
<td>.25(.13) \textsuperscript{ab}</td>
<td>.21(.13) \textsuperscript{ab}</td>
<td>.56(.74) \textsuperscript{bc}</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at $p < .05$. Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in superscripts. These differences are based on Critical Ratios calculated on unstandardized coefficients. Path F is not reported for this model (see Table 9), but is available upon request.

*Relationship Equality.*

Nested model comparisons of model that included Relationship Equality indicated that the decrease in model fit was non-significant when paths were constrained to be equal across all relationship length groups (nested model comparison $\text{Chi}^2 = 34.34$, $df = 28$, $p = .190$), and between spouses (nested model comparison $\text{Chi}^2 = 20.09$, $df = 16$, $p = .216$). Therefore, the best model for Relationship Equality was a model in which relationship length groups’, and spouses’ path estimates were constrained to be equal
(model fit statistics \( \chi^2 = 39.55, df = 30, p = .114, NFI = .99, CFI = .99, RMSEA = .01 \)) (see Table 14 for path estimates).

Table 14. Standardized (Unstandardized) Equality in Relationship Path Estimates with Husband and Wife Paths, and Relationship Length Groups Constrained to be Equal and Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor (Path A)</th>
<th>Husband Actor (Path B)</th>
<th>Wife Partner (Path C)</th>
<th>Husband Partner (Path D)</th>
<th>Satisfaction Correlation (Path E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.49(.27)</td>
<td>.45(.27)</td>
<td>.33(.18)</td>
<td>.29(.18)</td>
<td>.23(.16)</td>
</tr>
<tr>
<td>2</td>
<td>.39(.27)</td>
<td>.44(.27)</td>
<td>.25(.18)</td>
<td>.31(.18)</td>
<td>.46(.27)</td>
</tr>
<tr>
<td>3</td>
<td>.45(.27)</td>
<td>.46(.27)</td>
<td>.32(.18)</td>
<td>.29(.18)</td>
<td>.25(.24)</td>
</tr>
<tr>
<td>4</td>
<td>.43(.27)</td>
<td>.42(.27)</td>
<td>.29(.18)</td>
<td>.27(.18)</td>
<td>.39(.35)</td>
</tr>
<tr>
<td>5</td>
<td>.40(.27)</td>
<td>.38(.27)</td>
<td>.28(.18)</td>
<td>.24(.18)</td>
<td>.38(.39)</td>
</tr>
<tr>
<td>6</td>
<td>.40(.27)</td>
<td>.39(.27)</td>
<td>.28(.18)</td>
<td>.24(.18)</td>
<td>.41(.49)</td>
</tr>
<tr>
<td>7</td>
<td>.45(.27)</td>
<td>.40(.27)</td>
<td>.31(.18)</td>
<td>.25(.18)</td>
<td>.55(.64)</td>
</tr>
<tr>
<td>8</td>
<td>.45(.27)</td>
<td>.40(.27)</td>
<td>.31(.18)</td>
<td>.25(.18)</td>
<td>.55(.61)</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at \( p < .05 \). Path F is not reported for this model (see Table 9), but is available upon request.

Communication.

Nested model comparisons of the model that included Communication indicated that when paths were constrained to be equal across all relationship length groups the decrease in model fit was non-significant (nested model comparison \( \chi^2 = 35.43, df = 28, p = .158 \)). However, when paths were then constrained to be equal between spouses there was a significant decrease in model fit (nested model comparison \( \chi^2 = 6.38, df = 2, p = .041 \)). Therefore, paths can be constrained to be equal across relationship length groups, but not between husband and wife paths. The best model for Communication, as
seen in Table 15, was a model in which path estimates across relationship length groups were constrained to be equal (model fit statistics $\chi^2 = 35.43$, $df = 28$, $p = .158$, NFI = .99, CFI = .99, RMSEA = .01).

Table 15. Standardized (Unstandardized) Communication Path Estimates with Relationship Length Groups Constrained to be Equal and Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife Actor (Path A)</th>
<th>Husband Actor (Path B)</th>
<th>Wife Partner (Path C)</th>
<th>Husband Partner (Path D)</th>
<th>Satisfaction Correlation (Path E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.44(.25)*</td>
<td>.41(.21)*</td>
<td>.27(.15)</td>
<td>.22(.12)</td>
<td>.54(.44)</td>
</tr>
<tr>
<td>2</td>
<td>.43(.25)*</td>
<td>.40(.21)*</td>
<td>.28(.15)</td>
<td>.21(.12)</td>
<td>.44(.39)</td>
</tr>
<tr>
<td>3</td>
<td>.44(.25)*</td>
<td>.37(.21)*</td>
<td>.28(.15)</td>
<td>.20(.12)</td>
<td>.51(.57)</td>
</tr>
<tr>
<td>4</td>
<td>.46(.25)*</td>
<td>.35(.21)*</td>
<td>.28(.15)</td>
<td>.20(.12)</td>
<td>.56(.65)</td>
</tr>
<tr>
<td>5</td>
<td>.45(.25)*</td>
<td>.33(.21)*</td>
<td>.27(.15)</td>
<td>.19(.12)</td>
<td>.65(.91)</td>
</tr>
<tr>
<td>6</td>
<td>.39(.25)*</td>
<td>.31(.21)*</td>
<td>.24(.15)</td>
<td>.17(.12)</td>
<td>.58(.80)</td>
</tr>
<tr>
<td>7</td>
<td>.45(.25)*</td>
<td>.34(.21)*</td>
<td>.28(.15)</td>
<td>.19(.12)</td>
<td>.58(.77)</td>
</tr>
<tr>
<td>8</td>
<td>.45(.25)*</td>
<td>.36(.21)*</td>
<td>.28(.15)</td>
<td>.20(.12)</td>
<td>.59(.81)</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at $p < .05$. Significant differences between husbands and wives within a given satisfaction domain are indicated by *. These differences are based on Critical Ratios calculated on unstandardized coefficients. Path F is not reported for this model (see Table 9), but is available upon request.

Because paths could not be constrained between husbands and wives, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses (see Table 15). Analysis of results indicated that wife and husband actor paths...
were different, with Communication as a stronger predictor of marital stability for wives than husbands.

Global Satisfaction.

Nested model comparisons of the model that included Global Satisfaction indicated that when paths were constrained to be equal across all relationship length groups the model fit decreased (nested model comparison $\chi^2 = 48.20,$ df = 28, $p = .010$). However, when paths were constrained to be equal between spouses, the decrease in model fit was non-significant (nested model comparison $\chi^2 = 3.50,$ df = 2, $p = .173$). Therefore, paths should not be constrained to be equal across relationship length groups, and the best model for Global Satisfaction was a model in which spouses path estimates were constrained to be equal (model fit statistics $\chi^2 = 20.66,$ df = 16, $p = .192$, NFI = .99, CFI = .99, RMSEA = .01).

Because paths could not be constrained across all relationship length groups, pairwise parameter comparisons were estimated using critical ratio analysis to determine which paths were significantly different across the relationship length groups and between spouses (see Table 16). Husband actor path (B) and in partner path (D) were essentially the same across all groups. Wife actor path (A) and partner path (C) tended to increase from group one to group four (married one to two years), and then generally decreased to group eight.
Table 16. Standardized (Unstandardized) Global Satisfaction Path Estimates with Husband and Wife Paths Constrained to be Equal and Marital Stability as the Dependent Variable

<table>
<thead>
<tr>
<th>Group</th>
<th>Wife</th>
<th>Husband</th>
<th>Wife</th>
<th>Husband</th>
<th>Satisfaction Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actor (Path A)</td>
<td>Actor (Path B)</td>
<td>Partner (Path C)</td>
<td>Partner (Path D)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.44(.28)(^a)</td>
<td>.44(.38)(^a)</td>
<td>.19(.12)(^ab)</td>
<td>.17(.12)(^ab)</td>
<td>.42(.19)(^a)</td>
</tr>
<tr>
<td>2</td>
<td>.45(.37)(^ac)</td>
<td>.53(.37)(^ac)</td>
<td>.24(.20)(^ac)</td>
<td>.28(.20)(^ac)</td>
<td>.56(.23)(^a)</td>
</tr>
<tr>
<td>3</td>
<td>.48(.36)(^ac)</td>
<td>.54(.36)(^ac)</td>
<td>.27(.20)(^ac)</td>
<td>.31(.20)(^ac)</td>
<td>.54(.42)(^bc)</td>
</tr>
<tr>
<td>4</td>
<td>.48(.36)(^bc)</td>
<td>.47(.36)(^bc)</td>
<td>.27(.20)(^c)</td>
<td>.26(.20)(^c)</td>
<td>.55(.36)(^b)</td>
</tr>
<tr>
<td>5</td>
<td>.54(.37)(^f)</td>
<td>.49(.37)(^c)</td>
<td>.28(.18)(^bc)</td>
<td>.23(.18)(^bc)</td>
<td>.60(.59)(^cd)</td>
</tr>
<tr>
<td>6</td>
<td>.43(.32)(^ac)</td>
<td>.45(.32)(^ac)</td>
<td>.29(.21)(^c)</td>
<td>.28(.21)(^c)</td>
<td>.60(.69)(^d)</td>
</tr>
<tr>
<td>7</td>
<td>.59(.37)(^f)</td>
<td>.55(.37)(^c)</td>
<td>.23(.13)(^ab)</td>
<td>.18(.13)(^ab)</td>
<td>.65(.76)(^e)</td>
</tr>
<tr>
<td>8</td>
<td>.56(.30)(^a)</td>
<td>.51(.30)(^a)</td>
<td>.24(.12)(^a)</td>
<td>.19(.12)(^a)</td>
<td>.60(.79)(^e)</td>
</tr>
</tbody>
</table>

Note: All shown coefficients were significant at \(p < .05\). Significant differences across marriage length groups within a given satisfaction domain are indicated by differences in superscripts. These differences are based on Critical Ratios calculated on unstandardized coefficients. Path F is not reported for this model (see Table 9), but is available upon request.

To summarize individual satisfaction item predictive relationships with marital stability, there were significant variations among relationship length groups and between husbands and wives. Therefore, an assumption of invariance must be rejected. Results further suggested three patterns of variations that were similar across different satisfaction item models. As expected, the majority of the actor (A and B) paths and partner (C and D) paths were significant as were all of the partner (E and F) correlations (see Tables 11 through 16). Similar to bivariate correlations, and scale predictive validity, individual item predictions indicated that actor paths (A and B) were stronger than...
partner paths (C and D). Finally, when differences were found between relationship length groups, couples in groups one and eight generally demonstrated the weakest prediction between satisfaction items and stability scales. For example, satisfaction with Love Felt predicted marital stability more powerfully for wives married six to 12 months (.71 standardized), compared to wives married less than three months (.18 standardized) and wives married 11 to 20 years (.46 standardized). Similarly, husbands married six to 12 months reported higher correlations between satisfaction with Conflict Resolution and marital stability (.51 standardized) compared to husbands married four to six month (.37 standardized). The opposite pattern also appeared in which moderate length marriages represented the weaker predictive power. For example, satisfaction with Love Felt predicted marital stability stronger for husbands married three months or less (.48 standardized) and husbands married 11 to 20 years (.47 standardized) compared to husbands married six to 10 years (.20 standardized).
Discussion and Conclusion

Marital satisfaction, especially in the form of scales, has been a key variable in marriage research. Currently marital satisfaction is measured, and results are interpreted the same, irrespective of time married or sex of the participants following the hypothesis of invariance in specific satisfaction items across different groups such as length of time married and sex of participants. This hypothesis has little research to support it. Therefore, it is important to the field of marital studies to test for invariance among multiple specific items of marital satisfaction across different groups based on length of marriage between husbands and wives.

Couple data were used to analyze six specific satisfaction items (Physical Intimacy, Love Felt, Conflict Resolution, Relationship Equality, Communication, and Global Satisfaction). Results were compared across eight relationship length groups (married three months or less, four to six months, six to twelve months, one to two years, three to five years, six to ten years, 10 to 20 years, and more than 20 years) and between husbands and wives in each group.

Significant differences between relationship length groups

Significant differences occurred between relationship length groups across all types of analysis. These differences suggested that the hypothesis of invariance across relationship length groups generally must be rejected. It is therefore important to interpret the findings of this study to better understand differences between groups married different lengths of time.
Individual/actor associations.

Several patterns were observed for individual or actor associations across relationship length groups. One pattern was a positive relationship between strength of individual item correlations and time married. Bivariate correlations, CFA, and scale reliability analysis indicated that individuals who have been married longer tend to have stronger associations among all six specific satisfaction items. In other words, husbands married more than 20 years, reported higher correlations between satisfaction items of Love Felt and Conflict Resolution compared to a husband married three months or less. Wives married more than 20 years reported higher correlations between satisfaction items of Physical intimacy and Communication compared to wives married three months or less. This suggested that individuals’ satisfaction items form a looser unit in early marriage, but is more cohesive for individuals married longer periods of time, as if the glue between satisfaction items hardens, creating a more cohesive satisfaction structure for husbands and for wives. Similar consistent trends were observed in changes of mean satisfaction scores and SD. Specifically, consistent with prior research mean satisfaction decreased (Halford et al., 2007) and SD increased for groups married longer.

However, this does not mean that the predictive value of satisfaction demonstrated any type of consistent trends. The actor effects of marital satisfaction on marital stability varied significantly across relationship length groups. Marital satisfaction sometimes predicted marital stability least in groups married shortest and longest periods of time (e.g., groups one and eight) compared to groups married medium periods of time (e.g., groups three, four, and five).
These findings are of particular interest when the variables being used are considered. At the time of the assessment, couples of different relationship lengths describe their current satisfaction. The stability scale represents a historical report regarding frequency of thoughts, discussions, and actions towards ending the relationship. It would be expected that length of marriage should reflect an additive effect of a higher number of marital instability thoughts, actions, and actions with lower stability for groups married longer. This is consistent with the mean stability scale scores reported in Table 1. Therefore, the significant variations in the relationship strength between current marital satisfaction and historical marital stability add further support that higher or lower satisfaction mean scores do not translate into the same stability outcomes for all relationship length groups and satisfaction influences couples married different lengths of time.

*Partner associations.*

Partner associations can be broken down into two areas, partner effects and partner correlations. Partner effects such as husband marital satisfaction’s ability to predict wife marital stability, and wife marital satisfaction’s ability to predict husband marital stability followed a similar pattern as actor effects. When significant differences were found among relationship length groups the stronger effects were generally in one of the middle marriage length groups. For example, wife satisfaction with Conflict Resolution predicted husband marital stability stronger for couples married three to five years (.33 standardized) compared to couples married three months or less (.17 standardized). The one exception was Physical Intimacy in which group one husbands demonstrated a significantly stronger influence on wife marital stability (.33
standardized) than other couples such as those married three to five years in which the partner effect was not significantly different from zero. Due to the high percentage of Caucasian couples in this current study, these findings support research by Oggins, Leber, and Veroff (1993) which suggested that newlywed Caucasian husbands reported higher tension and irritation with sexual dissatisfaction than Caucasian wives.

Partner correlations, on the other hand, tell another story about couples in different relationship length groups. Across all analyses, one pattern stood out consistently and distinctly. Correlations between husband and wife satisfaction (as satisfaction scales and as specific items of satisfaction) increased for groups married longer. This suggested that while couple marital satisfaction forms a looser unit in recently married groups, it is more cohesive between husbands and wives married longer periods of time. This suggests that the analogy of glue also applies between husbands’ and wives’ marital satisfaction items and scales. The glue within a marriage cures creating a more unified satisfaction structure for couples. These findings are suggestive of, and support the idea of coupleness (Acitelli, Rogers, & Knee, 1999) or we-ness (Reid, Dalton, Laderoute, Doell, & Nguyen, 2006). Acitelli et al., (1999) reported that length of marriage increases the degree of couple identity, or the degree that individuals think of the relationship and their partner as part of themselves. With increased sense of we-ness, a change in one partner will more likely “influence changes in the other” (Reid et al., 2006, p.244).

One inconsistency with the current research and prior findings is that higher levels of coupleness are associated with higher levels of satisfaction. Current findings reported higher levels of correlation, or possible coupleness, in groups married longer which also
reported lower mean satisfaction scores. There are two possible explanations to resolve this inconsistency. First, the current study is not a longitudinal study of changes within the same couples. Therefore, as demonstrated previously, satisfaction mean scores cannot be directly compared across different relationship length groups. Second, coupleness is a sense of identity held by the couple. The correlations in husband and wife satisfaction may be considered an outcome of coupleness and therefore correlations do not necessarily measure coupleness.

*Significant differences between husbands and wives*

Significant differences occurred between husbands and wives for all types of analysis. No patterns emerged which consistently favored husbands or wives with the strongest means or associations. Gender differences varied with relationship length groups, specific satisfaction items, and analysis type.

*Individual/actor associations.*

A pattern that emerged between husbands and wives reported that spouse mean satisfaction scores were statistically different in 10 out of 48 possible scores (five cases husband means were higher and five cases wife means were higher). More specifically, wives tended to report higher Physical Intimacy and Relationship Equality across most marriage length groups, whereas husbands in later groups of time married (groups seven and eight) reported higher satisfaction with no inclination towards specific dimensions of satisfaction. These gender differences suggest that across relationship length groups, wives report higher satisfaction in groups more recently married, but husbands report higher satisfaction in groups married 10 years or more. On the other hand, in marriages of
many different lengths, wives report higher satisfaction in the areas of Physical Intimacy and Relationship Equality.

Prior research has suggested that husbands are more satisfied with marriage and therefore marriage is better for men than women (Schumm, Webb, & Bollman, 1998). On a scale from one to seven, authors reported a .06 difference in mean satisfaction scores (husbands = 6.14, and wives = 6.08) which was significantly different from zero. The small yet significant difference in mean scores was used to conclude that marital satisfaction is correlated with overall well-being equally for men and women of all different age groups (Schumm, et al., 1998). The difference in mean score found in prior research was very similar to this current study. As seen in Table 1 of this current study, there was a .04 difference in mean Global Satisfaction scores (husbands = 4.11 and wives = 4.07) which was also significantly different from zero.

Findings from this current study suggest three possible concerns for interpretations applied to prior research. First, the authors were relying on an assumption of invariance between marital satisfaction and general well-being across different marriage lengths, and between husbands and wives, yet there was no indication that the hypothesis of invariance had been tested and confirmed. While this current study did not test for invariance involving general well-being, results did indicate invariance with marital stability, another commonly associated variable. Second, when means were analyzed in this current study according to relationship length groups, different patterns emerged. While husbands in groups seven and eight (married ten years or more) reported higher Global Satisfaction scores, wives in groups two and three (married three months to one year) reported higher Global Satisfaction. Therefore, the average length of
relationship is an important characteristic to consider before making conclusions of average satisfaction scores. Third, another important characteristic to consider is the specific satisfaction item being studied. Husbands and wives in the current study reported different patterns of higher mean satisfaction scores depending on specific satisfaction items and length of marriage. There is reason to believe that “global and specific relationship perceptions operate quite differently within relationships” (Neff & Karney, 2005, p.496). Therefore, one specific item alone can not provide a comprehensive understanding of marital satisfaction let alone provide adequate interpretations of mean differences.

The effect of satisfaction on one’s own marital stability varied between husbands and wives. Three specific items of satisfaction revealed significant differences between the strength of path estimates in predicting marital stability. In almost every case, differences meant that the satisfaction item was more predictive of marital stability for wives compared to husbands. Consistent with prior research, Communication was more important or more predictive of marital stability for wives than husbands (Christensen & Miller, 2006; Henry & Miller, 2004). Similarly, Love Felt was consistently more predictive of marital stability for wives than husbands whenever differences were found. The one exception was Physical Intimacy for husbands in group one. In this case only, husband satisfaction was more predictive of stability than wife satisfaction with Physical Intimacy, suggesting the importance of satisfaction with Physical Intimacy for newlywed husbands. While sexual relations is only one part of Physical Intimacy, this is consistent with prior research suggesting that sexual relations are a higher priority for men than women (Christensen & Miller, 2006; Guo & Huang, 2005).
Partner associations.

Significant differences were found between the predictive power of husband and wife satisfaction items on spouse marital stability with the items of Physical Intimacy, and Love Felt. Differences consistently favored the wife as being more influential on husband marital stability than husband satisfaction on wife marital stability. This is consistent with the previously mentioned hypothesis that, as the relationship barometers (Denton et al., 1994), wives’ marital satisfaction reports would be more reflective of husband and wife relational factors such as marital stability than husbands’ marital satisfaction reports. Therefore, the stronger relationship between wife satisfaction with love felt and physical intimacy may actually represent her increased sensitivity to relationship characteristics such as stability.

This seems to contradict research by Weigel and Ballard-Reisch (1999b) which suggested that husband satisfaction significantly predicted wife relationship maintenance behaviors, but wife satisfaction did not significantly predict husband relationship maintenance behaviors. However, both prior and current research may be consistent. The prior research was examining behaviors as dependent measures. Therefore, wives, as the relationship barometers, could be expected to be more aware of husbands’ satisfaction and then more responsive with maintenance behaviors. Husbands, as lower in relationship monitoring, would be less aware of wives’ satisfaction levels and less responsive with maintenance behaviors.

Conclusion

The purpose of this study was to add to our understanding of relationship satisfaction by exploring and testing group variations using common methods of
evaluation. There are concerns and criticisms of our current manner of measuring and applying satisfaction in research of adult relationships (Bradbury et al., 2000; Davey, Szinovacz, 2004; Funk & Rogge, 2007; Guttmann, Lazar, 2004; Johnson, et al., 1986; Moore et al., 2001; Sprecher, 1999). One of the assumptions required for appropriate use of scales across groups is that of invariance, meaning that scales report and interpret the same thing across groups.

The results of this analysis confirm previous suspicions of variance for specific satisfaction items across relationship length groups and between sexes. While the specific items of satisfaction fit well into a scale for each group, and results indicated that the significant difference between constrained and unconstrained scale models was small, CFA and item analysis indicted that use of scales masks important variations. The creation and use of marital satisfaction scales can be a valid and useful method in marriage research, but the interpretation of scales, particularly when exploring group mean satisfaction scores, across relationship length groups and between husbands and wives, requires preliminary testing of invariance at the item level. Otherwise, researchers can not assume that differences in scale scores reflect the same thing to each group.

In order to consider suggestions for future researchers, some limitations of this current study must be understood. One of the limitations of this study is that the specific items measured here are of themselves perceptions of satisfaction. Therefore, variations in specific behaviors and circumstances that are perceived as satisfying for physical intimacy or equality in relationships, etc. were not identified. Future research would benefit the field of family studies by exploring significant differences in behaviors and
circumstances across relationship length groups and sexes in order to offer interpretations, interventions, and applications most fitting for specific groups.

This current study did not compare differences of specific satisfaction items within each group. For example, do Physical Intimacy, Love Felt, Conflict Resolution, Relationship Equality, Communication, or Global Satisfaction load significantly different onto the latent satisfaction measure, or influenced marital stability for husbands or wives within any particular relationship length group? Recognizing different loading strengths would allow researchers to apply appropriate weights to different items, thus creating more accurate scales for each group. Prior researchers have suggested the need to consider different weights of satisfaction items within scales (Guttmann & Lazar, 2004), and that weighted scales can improve validity and reliability (Raykov, 2007). However, when a single scale includes multidimensional aspects, the weighting of aspects due to the number of questions on a specific aspect or through statistical procedures must accurately reflect the groups being tested or the results will be biased and participants will be “misclassified” (Norton, 1983). Currently there is little foundational research to suggest the best methods for determining appropriate weights or item variations for satisfaction across different groups. Therefore, more foundational research and procedures must be developed to assist scale accuracy in future research.

Recent developments in analysis and theory offer indications for future research to address this problem. Item Response Theory (IRT) has demonstrated the statistical ability to “account for examinee item responses” (Reise, Widaman, & Pugh, 1993, p. 557) in a manner unique from CFA (Reise et al., 1993). While CFA and IRT offer different strengths and weaknesses for group comparisons (Stark, Chernyshenko, &
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Drasgow, 2006), and may produce similar results (Raju, Laffitte, & Byrne, 2002), IRT can offer a useful analysis at the item level across different groups (Collins et al., 2000). Furthermore, IRT analysis can provide additional indications as to whether differences are important (Stark et al., 2004).

Another limitation of this analysis was the use of cross-sectional data. Therefore the results cannot claim to represent a developmental process, only to highlight differences between couples currently married for different lengths of time and illustrate that invariance does not apply to cross-sectional comparisons of couples married different lengths of time. The current findings, however, may represent longitudinal differences due to life course differences. For example, as relationships are built, qualities such as love and intimacy are also prone to development. Newly married couples maybe strongly influenced by expectations, but the reality of their spouse and married life soon sets in and the adjustment process begins (Rybash, Roodin, & Santrock, 1991). Developmental processes such as having, rearing, and launching children, with the associated stresses and pleasures, impacts individual and couple development requiring shifts in expectations, priorities and identification of what is important, practical or even possible (Rybash, et al., 1991). Future research should utilize longitudinal data to weed out cohort effects and provide a more clear understanding of husband and wife marital satisfaction development on an individual item level across time.

Future research should also consider significant differences between other groups such as different races and cultures, relationship types such as married, cohabitating, engaged, couple with and without children, first or subsequent marriages, blended families, and groups based on personality types and attachment styles. This may seem a
complicated and overwhelming task. However, unless we can assure that relationship satisfaction means the same thing to a young childless Caucasian male in his first cohabitating relationship, as it does to a middle aged Latino female with multiple children in a second marriage, as it does to an elderly African American husband or wife celebrating a 50th wedding anniversary, our reliance on satisfaction as a key indicator, especially to compare groups, is inappropriate.

With a variable that is not stable across groups and that entails many different aspects, researchers must use caution when interpreting differences or changes. Caution is represented in two ways. First, researchers must exercise caution when comparing different population groups. The assumption of invariance of marital satisfaction items across groups must be confirmed as part of analysis procedures (Nguyen, Kitner-Triolo, Evans, & Zonderman, 2004). Researchers have reported correlations between marital satisfaction and other life measures such as wellbeing of the individual (Hawkins, Booth, 2005) without an assurance of invariance. Researchers can not assume that the correlations are equal for all populations. Therefore, interpretations of what individual item and scale satisfaction scores mean to wellbeing and other measures of interest must be preceded by confirmation of invariance. More detailed examinations of scales and items with recent methodological and theoretical advancements such as Item Response Theory, can allow the field of marital research to strengthen and improve the tools for satisfaction assessment (Funk, Rogge, 2007).

Secondly, researchers must exercise caution in the interpretation of mean score differences on one or two satisfaction items without considering the differences across numerous specific items. For example, men and women report different mean global
satisfaction scores (Schumm, et al., 1998), yet when other satisfaction items are considered, different patterns of which group reported higher or lower mean scores was observed. Therefore, one item can not be interpreted as total marital satisfaction. One solution is an increased use of structural equation modeling in which multiple individual items are allowed to freely load on latent measures across different groups. The use of such analytical procedures and multiples satisfaction items will promote more accurate understanding of the relationship between marital satisfaction and other relational and life variables.

Marital satisfaction is not a solid rock on which marital stability can anchor irrespective of groups such as length of marriage and sex. On the contrary, satisfaction is a flexible and shifting mass, like a body of water itself, subject to tides and currents. The existence of the water is real, and can be quantified, but we cannot expect it to remain motionless like a block of ice. It is more like a changing tide; an increase or decrease in one item must not be construed as evidence of change in the entire body of water. As a fluid facet of relationships, researchers would do well to recognize that perceptions of how important specific satisfaction items are to specific outcomes will vary across groups with differing length relationship length and between sexes. When the shifting nature of this key measure is recognized and appropriately dealt with, our use of marital satisfaction in research will lead to a better grasp of this measure’s strengths and limitations, as well as a more accurate understanding of its place in various different marriages.
References


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Appendix A: Unabridged Review of Variations among Sub-groups

Measures of satisfaction are frequently used and interpreted the same for all populations maintaining an assumption that conclusions can be applied equally across all groups. There are, however, reasons to believe that the importance specific satisfaction items, as well as desirable and undesirable traits may vary between groups (Buss et al., 1990; Christensen & Miller, 2006; Henry & Miller, 2004; & Henry et al., 2005). Davey and Szinovacz (2004) suggest a need for research on changes in the construct of marital quality across “subgroups” such as sexes, or pre/post major transitions because “little research has considered the importance of” (p.434) changes in construct.

Guttmann and Lazar (2004) also explored this concept in their study of couples before and after the birth of a first child. They questioned the assumption that all individual items or aspects of marital quality carry the same importance or are “weighted” equally before and after the birth of a child. These authors suggested that “people should be asked not only to rank the degree of satisfaction with a particular aspect in their marriage but also how important this aspect is in determining their marital satisfaction” (p.148). There are suggestions of other group types with variation in the associations and interpretations between behavioral measures and relational satisfaction (Fincham et al., 1995).

One consideration for different interpretations is whether satisfaction scores are increasing or decreasing (Bradbury et al., 2000). For example, two individuals may report the same level of satisfaction, but if one of the people is in the middle of a downward slope of satisfaction and the other is in the middle of an upward slope, the interpretations of what the score means will be different. As such there has been a call for re-
examination of satisfaction and its correlates to examine differences between some group
types (Bradbury et al., 2000) and more research to determine “the differential predictive
power of individual factors” (Fouquereau & Baudoin, 2002, p.103) for different
populations.

*Differences among age groups*

In the comparison of different age groups, authors report that marital satisfaction
“is almost universally high at the time of marriage” (Halford et al., 2007, p.185), but
decreases with age or over time (Davey & Szinovacz, 2004; Halford et al., 2007; Kurdek,
1999; VanLaningham, Johnson, & Amato, 2001). This would suggest that as people grow
older they are more likely to experience decreases in happiness and satisfaction with
marriages and spouses. A common time frame of decrease is the initial 10 years of
marriage (Kurdek, 1999). Since marital satisfaction represents a stronger impact on
stability than any other variable (Karney & Bradbury, 1995), this should also suggest that
a decrease in marriage satisfaction over time should lead to a decrease in marriage
stability (Previti & Amato, 2003). This, however does not seem to match the trends of
divorce since divorce rates decline over time (Levenson, Carstensen, & Gottman, 1993).

It may therefore be that we are not fully measuring or correctly interpreting the
measurements we have when it comes to the association between satisfaction and age.
Some common items may be less or not at all relevant to older couples, whereas some
issues relevant to older couples may not be included in traditional satisfaction measures
(Clements & Swensen, 1999; Fouquereau & Baudoin, 2002). It can be problematic to
include traditional items in one scale that compares different groups such as the very old
and the very young when the effects seem inconsistent across groups (Johnson et al.,
As was suggested by Bradbury et al. (2000), we may not be able to accurately interpret satisfaction scores for two different groups without considering the context of the current scores. Since “few theories have focused directly on relationship change, and the predictions about how love and related phenomena should change over time” (Sprecher, 1999, p.46) we have “little understanding how the relationship between intimacy and relationship satisfaction varies according to the length of the relationship” (Moore et al., 2001, p36). At this point we are left to interpret a relatively small number of studies which examine changes with time.

Christensen and Miller (2006) found that significantly more of the participants reporting problems with communication had been married more than 15 years. In the same study participants married less than 15 years more frequently, but not significantly, reported problems with affection. Couples older than 65 years of age reported that intimacy and personality were less important in their relationships than couples younger than 65 (Henry et al., 2005). Household concerns and leisure activities were more of a struggle for the older couples (Henry et al., 2005). While the differences may not be large, the strengths and problems listed in order of priorities appear to vary with age (Henry & Miller, 2004; Henry et al., 2005; Levenson, Cartensen, & Gottman, 1993).

This supports Kurdek’s (1999) proposal that “different components of marital quality change in different ways” (p.1294) in that some increase and some decrease with time. Feelings of love may change over the course of time in reported levels compared to memories of love felt earlier in the relationship (Sprecher, 1999). Specifically, couples that score higher in satisfaction are inclined to report that relational affect measures of love, commitment, and satisfaction are higher at current assessments than prior
assessments. While the increases in commitment do more closely match actual measured increases, love and satisfaction scores have not significantly increased, if at all, in later assessments, but the couples still perceive higher levels. This may be because the

...definition of love and related affect changes over time so that compared with the type of love (commitment or satisfaction) that they are currently experiencing, what they recall experiencing at an earlier time may seem to have a different or lesser quality (Sprecher, 1999, p.51).

For couples that later separate, there is a different pattern of actual versus perceived change. Perceptions of commitment and satisfaction decline rapidly, but perceptions of love in the past and current assessments may decline more slowly (Sprecher, 1999). The author suggested this pattern indicates that decreases in satisfaction causes “love to stop growing” (p.51). Some relationships, or at some points of a relationship, feelings of love become less important to overall satisfaction or other specific aspects of satisfaction override love’s influence on satisfaction causing a decline in overall satisfaction.

Schmitt, Kliegel, and Shapiro (2007) explained the process this way: In the initial stages of marriage characteristics such as strength of emotions and physical appearance are important. With time together, the couples experience stresses and their satisfaction is more influenced by interaction patterns and dynamics. Since marriage interaction styles of communication and conflict resolution are important for coping with stressors and challenges it can be expected that both communication and conflict resolution will become more strongly related to overall satisfaction with increased length of marriage. Their findings supported the increased importance of interactions for older married couples.
Differences Resulting from Life Transitions

Transitions are the results of moving from one condition to another such as from pre-marriage to marriage. With these transitions come new conditions, expectations, responsibilities which may become problems and must be adjusted to and dealt with (Schramm, Marshall, Harris, & Lee, 2005). Pursuit of the good or happy marriage may be described as a fluid work in progress of adjusting to changes from transitions (Wallerstein, 1996), or maintaining/protecting the relationship from forces such as transitions that might injure or damage it (Canary, Stafford, & Semic, 2002). Either perspective is still suggesting that transitions happen and must be dealt with because the relationship, circumstances, and/or individuals do change.

Changes resulting from transitions may be similar to changes that result from the passing of time. Transitions do occur with the passing of time, but the passing of time may occur without any significant transitions. There is some reason to suspect that differences such as a lesser importance of use of time may occur with retirement (Davey & Szinovac, 2004). This means that couple time together is more strongly associated with marital quality before retirement. Davey and Szinovac (2004) also suggested that for men, the relationship between likelihood of divorce and happiness of marriage also decrease after retirement, meaning that unhappily married men are less likely to consider divorce. Birth of the first child is another example of a transition for couples. Areas of agreement and consideration (agreement on basic issues, handling disagreements, openness, etc) and intimacy (sexual relationship, physical attractiveness, expressions of love, humor) seem to be more influential on overall satisfaction after the birth of a child (Guttmann & Lazar, 2004). Loyalty on the other hand was of less importance after the
birth of a child (Guttmann & Lazar, 2004). Another transition which has been explored is the transition from a first marriage to a second or subsequent marriage. Henry and Miller (2004) reported that among a midlife sample group communication and dealing with children were more problematic for couples in a second marriage than for couples in their first marriage.

Differences between sexes

While we know that husbands’ and wives’ marital satisfaction and quality are significantly associated (Kearns & Leonard, 2004), one of the most common group differences of specific marital issues found in existing research was between male and female groups (Christensen & Miller, 2006; Davey & Szinovacz, 2004; Hendrick et al., 1984; Henry & Miller, 2004; Henry et al., 2005). For example, women tend to rank communication (Christensen & Miller, 2006; Henry & Miller, 2004), and money or financial security (Buss et al., 1990; Christensen & Miller, 2006) as higher priorities than in men’s rankings. In comparison to the communication priority of women, no men reported wanting more listening from their wives (Christensen & Miller, 2006). Money related issues may vary with different ages among men. Henry et al. suggested that older men reported more frequent disappointments regarding financial matters than younger men (2005).

Men tended to rank sexual relations (Christensen & Miller, 2006; Guo & Huang, 2005) and problems with in-laws (Henry & Miller, 2004) as a higher priorities than women. In fact, regarding sexual relations, Christensen and Miller reported that only one female participant in their study reported the desire for more sexual relations compared to men who on average rated sexual relations (desire for more sex) as the second most
serious problem. While the degree of division between men and women’s prioritizing of sex varied among studies, there were no studies located in which women reported sexual relations as a higher priority than men. This is particularly significant to take into account when the results of the study by Liu (2003) are considered. Liu reported that over time, women tend to be less satisfied with sexual relations. One conclusion of the combined results of these studies might suggest that while women tend to be less satisfied with the sexual relations over time, this particular area is less influential towards their overall relational satisfaction and women are therefore less inclined to associate sexual relations with overall relational satisfaction. Another response more frequent reported by men was to say that there was nothing they wanted to change (Christensen & Miller, 2006; Henry et al., 2005) suggesting fewer perceptions of problems compared to their wives.

Other differences between sexes can be identified in the types of love more strongly associated with men and with women. Hendrick et al. (1984) reported that men tend to score higher in erotic and game playing aspects of love. Women tend to identify love more as a slow, quiet, and pragmatic process. This may be presented in a perception of spousal support that seems to influence wife’s satisfaction more than husband’s (Gagnon et al., 1999). Both sexes tended to score similarly on agapic or charitable perspectives of love.

Findings related to personality characteristics may also support the gender differences regarding types of love. Miller, Caughlin, and Huston (2003) suggested that the perception of a partner personality characteristic of responsiveness such as being “pleasant, cheerful, friendly, enthusiastic, polite, helpful, cooperative, considerate, easygoing, amusing, forgiving, sincere, patient, generous, and energetic” (p.985) is more
influential on the marital satisfaction of the women in their study than for the men. Interestingly, in this longitudinal study, this gender difference presented itself after the first and second years of marriage, but not when first married or at a follow up interview 13 years later.

Women may tend to value financial security more than physical attractiveness compared to men (England & Farkas, 1986). Furthermore it appears that perceived role equity (Buunk & Mutsaers, 1999) and particularly fairness of house work among dual career couples may be significantly related to marital stability for women, but is not significantly related to marital stability for men (Frisco & Williams, 2003). On the other hand there is some reason to believe that low marital happiness is more strongly associated with marital instability for men than for women (Gager & Sanchez, 2003).

With the amount of research that has suggested some differences between men and women’s visions of satisfaction, it may be that men and women have somewhat different anchors that keep them together.

*Differences among race/culture*

Most research defining satisfaction has been based on Caucasian, middle-class, young or middle age populations so traditional interpretations may not apply as well with other racial or cultural groups (Clements & Swensen, 1999; Crohan & Veroff, 1989). Some marital researchers, particularly those studying cultures outside of North America have suggested that context is essential to consider (Abela et al., 2005; Buss et al., 1990; Shen, 2005) in order to fully understand mate selection and marriage unions in other countries.
Fouquereau and Baudoin (2002) tested an English scale of satisfaction (Marital Satisfaction Questionnaire for Older Persons) with a French population. The results of their analysis suggested that communication and companionship were important to both groups, yet were more strongly related to overall satisfaction for French participants than for English participants. Sex and affection on the other hand were more strongly related to overall satisfaction for the English participants.

Myers, Madathil, and Tingle (2005) reported that their comparison of married couples in India with married couples in the United States revealed no significant differences in marital satisfaction levels. However, there were multiple significant differences in the importance of some characteristics. Emotions of love and loyalty in marriage were more predictive of marital satisfaction in the United States. Marital satisfaction in India was more strongly predicted by a different perspective of loyalty, i.e. loyalty to families of origin. Love was also interpreted differently among Indian couples. Love is seen to grow after the start of arranged marriages versus the United States perspective that marriages are entered into due to the creation of love, yet the “love wellness” was not significantly different between samples.

Another example of racially based differences was reported by Broman (1993). Spousal emotional support and financial satisfaction acted as partially mediating variables between race and relational well-being for a sample of black and white participants. Consistently, family income is more strongly related to marital happiness for black newlyweds compared to white newlyweds (Crohan & Veroff 1989).

More recently, Rehman and Holtzworth-Munroe (2007) found that positive and negative communication behaviors are significantly related to marital satisfaction. They
also found that the strength of the relationship between communication and marital satisfaction varied significantly between the three groups of North American couples and Pakistani couples who have immigrated to America and Pakistani couples living in Pakistan. The largest differences were between North American couples and Pakistani couples living in Pakistan. Possibly due to acculturation, Pakistani couples living in America scored in between the two other groups. While they did not control for significant differences in education and income which could account for some of the difference, their findings provided further support for suspecting cultural and racial differences.
Appendix B: Review of Theory

If differences between groups do exist in the importance of specific aspects of satisfaction, can theory explain it? It is not reasonable to assume that a perception of satisfaction in marriage appears suddenly upon completion of the wedding ceremony. Neither is it logical to assume that some inevitable and unconscious switch clicks on when love first blooms that tells individuals whether or not the relationship is satisfying. In spite of the irrationality of adult intimate satisfaction perceptions just appearing, very little literature was found that directly addressed the development of satisfaction perspectives and variations. Attachment theory and the process of internalization of values provide useful perspectives and explanations to explore.

 Attachement theory.

One of the most descriptive theories of human relationship development and “individual variations” is attachment theory (Simpson, Collins, Tran, & Haydon, 2007). Attachment theory addresses the development of attachment styles from infancy into adulthood. Individual variations occur because “one’s personal history of receiving care and support from attachment figures across the life span shapes the goals, working models, and coping strategies that one uses when emotion-eliciting stimuli or events occur in relationship contexts” (Simpson et al., 2007, pp. 355-356). Specific aspects or items of satisfaction could be interpreted as specific aspects of an internal working model as described by attachment theory.

Several assumptions provide the foundations of this theory and also help explain variation in internal working models as well as specific aspects of relational satisfaction. In his writing, Bowlby (1982) suggested that attachment theory assumes that evolution
has resulted in an “attachment behavioral system” which forms the bonding of infants to attachment figures (parents) and parents to infants. In other words, the infant’s behaviors lead parents to come close and stay close to the infant in order to provide necessary care and protection. From infancy, the individual is goal oriented towards certain results, beginning with proximity. Behaviors which achieve these goals such as “sucking, clinging, following, crying, and smiling” (Bowlby, 1982, p.180) are triggered in order to inspire proximity with the mobile attachment figure. This proximity can help insure that basic physical needs of nourishment and protection are met, as well as emotional needs of interaction and caring. The parent’s attachment behavioral system ideally inspires confidence in the infant and toddler for a safe foundation to learn, grow, and explore. The interactions with attachment figures and the degree to which attachment needs are met combine to create an internal working model within the child. Internal working models are the worldview, perspective, or expectations a child holds of self, relationships, and others, particularly attachment figures.

In the normative case, a child enters into his third and fourth years, he becomes less responsive to the attachment behaviors of the parent and requires less proximity. This continues through childhood and adolescence with shifts in the attachment focus, behaviors, and internal working models away from parents and increasingly towards other attachment figures. The new attachment figures then become the major recipients of the maturing individual’s attachment behaviors. These attachment behaviors continue to develop as the individual interacts with the primary attachment figures as well as subsequent attachment figures through childhood and later. As with the parent-child relationship, proximity is one of the desired goals (Ainsworth, 1989). A variety of
influences including hormonal alterations results in a focus on “partnership with an age peer, usually of the opposite sex—a relationship in which the reproductive and care giving systems, as well as the attachment systems, are involved” (Ainsworth, 1989, p.710). The internal working model possessed in adulthood seems to be an accumulation of prior attachment experiences (Sroufe, Egeland, Carlson, & Collins, 2005). A “carry-forward process” results in associations between attachment style at infancy, friendships, and confidence during childhood and adolescence, and adult intimate relations (Simpson et al., 2007).

Three different behavioral systems have been identified within adult intimate relationships. They include the reproductive, attachment, and care giving behavior systems. Sexual attraction as part of the reproductive system may be seen as a primary trigger in the early phases of the relationship, with the care giving and attachment systems increasing in importance as the relationship matures (Ainsworth, 1989). The goals of partner attachments, or sexual pair bonds, would seem to include feeling protection, love (Koski & Shaver, 1997), and “security and comfort” (Ainsworth, 1989, p. 711), accompanied with the freedom to engage in other activities away from this secure base.

While no literature specifically describes manifestations of these adult behavioral systems, which adult behavioral systems become desirable by adult partners are likely linked to the goals and world view created within the partner. An extension of the childhood literature suggests that these evolution-oriented behaviors inspire behaviors in both adult partners that ensure the adult goals are met. For example, behaviors during courtship such as the man bringing flowers to the women, the woman smiling and kissing
the man on the cheek would inspire feelings of love within each other, meeting the goals and world view for security and thus increase the desires for proximity and commitment.

As with childhood attachment with parents, this adult form of attachment carries with it attachment needs. The terminology of attachments needs closely matches the definition of satisfaction, “fulfillment of a need or want” (Webster’s dictionary, p. 1044, 1990). These attachment needs must be met for the adult individual to feel secure and satisfied in the relationship (Koski & Shaver, 1997; Mikulincer & Shaver, 2007). If the needs of one or both partners are not met, the relationship may be deemed unsatisfactory for one or both partners (Mikulincer & Shaver, 2007). Furthermore, some of the attachment research has demonstrated associations between relationship satisfaction and attachment style with lower satisfaction being related to anxious or avoidant styles and higher satisfaction being related to a secure attachment style, although the findings do not consistently show these connections (Mikulincer & Shaver, 2007).

An example of individual variations in relationship satisfaction can be observed in the individual variations in the interpretations of positive partner behaviors. Simpson et al. (2007) explain that individuals with secure attachments will “experience an assortment of positive emotions” (p.357) when their partners exhibit positive behaviors. On the other hand, individuals with insecure attachments may experience positive partner behaviors with less gratitude and less positive or even negative emotions because of different meanings and interpretations placed on the partner’s positive behaviors. This may possibly be due to the relationship between insecure attachment and negative attributions (Pearce & Halford, 2008).
The cyclic process (Mikulincer & Shaver, 2007) for developing a secure attachment occurs something like the following. Positive attachment behaviors demonstrated by one individual and recognized by the partner results in meeting the attachment needs of the partner. This should in turn result in the support or even increase in secure attachment or internal working model in that partner. Positive attachment behaviors will be triggered within the partner promoting the return of positive attachment behaviors to the first individual. This will result in the first individual maintaining or improving the security of their own internal working model and therefore promoting secure attachment, and so on.

On the other hand, attachment-injuring behaviors can result in a loss of security or doubt that future attachment needs will be met with this particular partner. The loss of security could result in damage to a positive internal working model or reinforcement of a negative internal working model. This in turn leads to fewer positive attachment behaviors and a decrease in triggering of positive attachment behaviors in the partner which confirms their negative internal working model and the cycle spirals down for both partners. No literature was found which discussed triggering “negative” attachment behaviors, but it seems reasonable that behaviors of criticism, contempt, and withdrawal (Gottman & Silver, 1999) may be examples of negative attachment behaviors. The downward cycle would continue until at least one of the partners loses their relational purpose. The partner or partners then withdraw emotionally and physically from each other to seek new attachment figures.

Even though the attachment needs and goals may be consistent across people, Attachment theory suggests that individual preferences for how those needs are met will
vary from person to person. For example, some may desire an “unusual degree of
certainty about a partner’s affection and commitment, or a partner’s willingness to allow
a certain degree of autonomy and privacy” (Koski & Shaver, 1997, p.29). These authors
further suggest that individual preferences are a result of each person’s prior experiences
within relationships and with attachment figures. In other words, one person may judge
high interdependence as satisfying while another may be satisfied by the opposite in the
form of high autonomy. It is through the accumulated history of each individual that
internal working models are created and developed. Internal working models result in the
development of a current perception of satisfaction within adult intimate relationships.

Attachment theory suggests that a perception of what is satisfying within intimate
relationships is genetically influenced, therefore similar across people, while at the same
time experientially influenced, therefore varying across people. This is consistent with
prior literature of relational satisfaction which suggests that some aspects of satisfaction
are commonly predominant across populations, while others vary with different groups
and individuals (Buss et al., 1990). It may be that some qualities such as love and
communication adequately meet some basic attachment needs and goals for evolved man.

Whether or not these qualities apply across people because they are foundations
upon which other qualities build, or simply because the selection of ongoing evolution
has continued to support them, is still emerging. For example, Mikulincer and Shaver
(2007) reviewed 97 attachment/satisfaction focused studies. Possible gender differences
are suggested in two areas. Women’s relational satisfaction appears to be “more
influenced by attachment insecurities than men’s” (p.311), whereas for men, attachment
related avoidance is more strongly related to lower satisfaction in men than attachment
anxiety. They suggest that these variations may to due to the importance of
“independence and emotional control” (Mikulincer & Shaver, p.312) for men compared
to women, or that women are more dissatisfied by male avoidant behaviors which
translate into less satisfaction for the men.

*Internalization of values.*

While, attachment theory explains the development of attachment styles, internal
working models, or expectations of self and other from infancy into adulthood (Shaver &
Clark, 1994); there is less literature to be found which offers attachment explanations for
“typical” development through the years and decades of adulthood. I include
internalization of values literature because it more clearly outlines the process of
socialization that can lead to the development of satisfaction perspectives. The
importance of influence for the previously mentioned cultural experiences is explained in
more detail by the process of internalization of values. What if some characteristics of
satisfaction such as feelings of love, abilities of communication, and parental approval
are actually internalized values which cause a person to esteem these qualities as
important? Internalization here is defined as “taking over the values and attitudes of
society as one’s own so that socially acceptable behavior is motivated…by intrinsic or
internal factors (Grusec & Goodnow, 1994, p.4). For the sake of my focus of what is
satisfying within relationships, I would change two words to say that internalization is
“taking over the values and attitudes of society as one’s own so that relationally
acceptable behavior is” recognized “by intrinsic or internal values.” In other words, we
recognize what is relationally acceptable or satisfying because over the course of our
lives we have internalized the values held by the large and small societies around us.
When the relationship and partner are consistent with internal values, the individual will be satisfied. On the other hand, if the relationship and/or partner are not consistent with these values, then the individual will not be satisfied. One individual may value being outspoken and aggressive in interpersonal communications. These values may be represented by behaviors of expressing strong and loud emotions and words during resolution of conflict. If this individual experiences this type of communication with a partner, it is likely to be satisfying in this one aspect. If, on the other hand, the partner does not value strong, loud emotions and words during conflict or values soft quiet emotions and words, it is likely that the partner will not be satisfied, possibly withdraw and then both will be dissatisfied in this aspect of the relationship. How then did each person come to value different types of emotions and words during conflict resolution?

The internalization of values has been a topic of research within the study of children and adolescents. As such, the literature focuses on how children internalize values from parents. The processes used to explain this process may apply quite well in explaining the development of characteristics of relational satisfaction in adults. The model prescribed by Grusec and Goodnow (1994) will be used to suggest this perspective of a developmental process.

Similar to the attachment process already described, the internalization of values begins within the society of the family of origin. As the child grows older and his society begins to expand with school, peers, and the world around him, there is a variety of values that either support or contradict aspects of prior value systems (Hynie, Lalonde, &
Marital Satisfaction Invariance

Lee, 2006). It is assumed that by the time individuals reach adulthood, they have been exposed to and accumulated an intricate mixture of intimate relational values.

The internalization of values may take repeated exposure to age-appropriate messages and instruction in order to comprehend the intricate qualities and nuances of relational values. According to the model created by Grusec and Goodnow (1994), there are two essential steps before a value can be internalized (see Figure 4).

Figure 4.
Grusec and Goodnow (1994) Value Internalization Model

These steps include obtaining an accurate perception of messages and an acceptance of values supported by the message.

The application of this model to the internalization of relational satisfaction values would therefore require that individuals receive multiple messages from the world around them suggesting that feeling love is important in an intimate relationship. Communication is important in relationships and certain ways of communicating are better than others. These repeated messages must be communicated at an age-appropriate level and the individual receiving the messages must understand them at an age-appropriate level. The second essential step is that the individual must accept the
messages as valid and applicable, thereby internalizing these messages over the course of time. Eventually these internalized messages and values become an intrinsic part of what the individual perceives as positive or negative, valuable or worthless, satisfying or disappointing. For example, more connectedness in families leads to more similarity between parent and child views of desirable mate characteristics (Hynie et al., 2006).

Marriage in some form exists between men and women in every known culture and more than 90% of the human population will marry at least once (Buss & Schmitt, 1993). Yet, aspects of marital satisfaction, or what is valued, varies in prominence among different groups such as cultures, communities, and families. In other words one culture, community, or family may provide their children with messages of what is valued related to their specific group. As values related to adult intimate relationships are internalized, they continue with the next generation.

Within our society, there are multiple sources for learning what to value within intimate relationships. Of course parents are one such source for values (Grusec & Goodnow, 1994; Hynie et al., 2006; Padilla-Walker, 2007). Peers (Crandall, Schiffhauer, & Harvey, 1997), the media (Martino, Collins, Kanouse, Elliott, & Berry, 2005), and the culture as a whole (Hynie et al., 2006) each provide consistent as well as conflicting messages to children. The variety of messages and the combination or mixture that is accepted by each individual becomes the value base of the next generation. It is also conceivable that throughout adulthood, messages are continually received and accepted, thus evolving the values or what is satisfying throughout the lifetime. This would conceivably explain the development of what is considered satisfying within adult intimate relationships, and why there are consistencies and variations across populations.
Theory has shown a possible explanation for how this anchor known as marital or relational satisfaction can develop and develop differently between groups and among individuals. An internal working model of the appropriateness or desirability of specific behaviors and characteristics may be strongly influenced by experiences in past attachment relationships and the internalization of values from the culture around us.
Appendix C: Unabridged Review of Characterizations of Satisfaction

Satisfaction in the context of relational research seems to share general overarching positive concepts such as relational “rewards” (Previti & Amato, 2003). However, those studying relationships offer different definitions of satisfaction or use different words to mean the same thing (Johnson et al., 1986). The terms “satisfaction” and “happiness” are often used synonymously (Johnson et al., 1986). Occasionally researchers have used “satisfaction” and “quality” interchangeably (Gallo, Troxel, & Kuller, 2003; Rhoden, 2003) presenting the assumption that the two terms represent the same concept.

Others refer to marital quality as a combination of marital satisfaction and stability, taking “into account whether or not a marriage has remained intact, and if it has, how satisfactory it is to both spouses” (Kinnunen & Pulkkinen, 2003, p. 223). Taking it further, others have suggested that satisfaction is a major component of quality along with, but separate from stability and additional measures of, interactions, disagreements, and problems (Bradbury et al., 2000; Johnson et al., 1986). This demonstrates a shift from the 1970’s when quality and stability, while always related, were considered sufficiently different to be separated in the decade review (Spanier & Lewis, 1980).

The purpose of the small preceding summery of terminology is to demonstrate the multiple interpretations of expressions that are too frequently used interchangeably or with distinct variations and thus confusing which “satisfaction” is being referred to at any given time. While the consumer of relational research can expect frequent exposed to the term “satisfaction”, it is likely that many or most references will use differing definitions or characterizations (Johnson et al., 1986).
By far the most commonly used manner for assessing satisfaction is through an accumulation of questions combined into a scale. The two most common (Funk & Rogge, 2007) characterizations of scales for satisfaction are the 32-item Dyadic Adjustment Scale (DAS) and the 15-item Marital Adjustment Test (MAT). They rely on combinations of “evaluative judgments about marital quality, as well as reports of specific behaviors and general interaction patterns” (Bradbury et al., 2000, p 973). While only 10 of the 32 items or one of the four subscales utilized by the DAS is specifically known as Dyadic Satisfaction (Messer & Reiss, 2000), the entire DAS scale, or versions of it, are often referred to as a satisfaction scales (Leone & Hall, 2003; Moore et al., 2001). It should be noted that while the MAT has been one of the most popular assessments, there were indications a few years ago that its popularity has been decreasing (Piotrowski, 1999).

Which measurement tools are used does seem to make some difference. Twenge et al. (2003) found in a meta-analysis of parenthood and marital satisfaction that measures such as the DAS yielded higher effect sizes in the decrease of satisfaction compared to single-item measures. Their interpretation was that scales such as the DAS “are more valid and reliable…and thus have more power to discriminate between parents and nonparents” (p.579).

Perhaps all of this is only an insignificant discussion of semantics, which in the end is not important to improve our understanding of adult intimate relationships. I expect, however, to demonstrate through this review of literature that there is sufficient evidence of a need to better understand the specific aspects or items of satisfaction to warrant further investigation.
With so many characterizations of satisfaction and in order to facilitate a review of specific items I have grouped the specific items into three general areas. Of course there is overlap between these areas in many studies (Bodenmann, Ledermann, & Bradbury, 2007), but for manageability purposes I have attempted to organize the specific items in the following manner.

**Specific items related to love/closeness.**

The first area is related to feelings of love (Previti & Amato, 2003; Rhoden, 2003; Skinner et al., 2002), including physical intimacy (Fields, 1983; Kearns & Leonard, 2004; O’Rourke, 2005; Perren et al., 2005). As early as 1896, researches have espoused the importance of love in marriage (Mathews, 1896). Mathews stated that “marriage is indeed a fundamental human relation…as such it is in the largest sense a fraternity that depends for its perpetuation upon love” (p.459). This focus on love as an important part of relational worth has continued to modern research (Stanley, Whitton, Sadberry, Clements, & Markman, 2006).

In a 1986 proposal of a theoretical perspective of love, Stenberg proposed a triangular theory of love in which sub-components make up the overall perception of love. The components include intimacy (i.e. closeness and connectedness), passion (i.e. romance, physical attraction, and sexual relations), and commitment (i.e. decision that one loves another and commitment to maintain that love). He further proposes that each of the three components can increase or decrease in size and influence within a relationship and person’s experience. The importance of each of them may also vary across situations and groups. The passion can be expected to start high and decline with time. The commitment on the other hand can be expected to increase unless the
relationship evolves towards dissolution. Intimacy may both decrease in observed behaviors and increase in emotional bonding at the same time. Sternberg’s (1986) research suggested that partner’s actual perception of self and the self’s desired perception by partner were indicators of satisfaction the more closely they mirrored each other. This is supported by the understanding of love and the influence it plays on relationships over time as an emotional experience strongly influenced by cognitive processes (Sprecher, 1999).

Specific items related to interaction.

Commonly used specific satisfaction items include conflict management or resolution (Abela, et al., 2005; Buunk, & Ybema, 2003; Kinnunen & Pulkkinen, 2003; Perren et al., 2005; Proulx et al., 2004; Watson et al., 2000), and communication (Abela et al., 2005; Gallo, Troxel, & Matthews, 2003; Perren et al., 2005; Proulx et al., 2004; Rhoden, 2003; Tallman & Hsiao, 2004). Some have suggested that these two areas of communication and conflict resolution are among the most important indicators of relational satisfaction (Markman, Stanley, Blumberg, Jenkins, & Whitley, 2004). In fact these have been major focuses in research of marital wellbeing for years.

There is reason to suspect that the relationships between communication/conflict resolution and satisfaction may not be as straightforward as has been assumed. For example, Rogers and Amato (2000) compared two samples representing similar ages and life stages, but whose members were from different time frames (married from 1964 to 1980, and married from 1981 to 1997). There was an increase in reported marital conflict from the earlier sample group to the later sample group, but the self-reported marital
happiness was the same. No obvious answer to this lack of influence was interpretable from the data.

*Specific items related to relational roles.*

Roles within relationships, who does what, how much is done, and is the separation equally balanced has been frequently associated with relational satisfaction (Buunk, & Mutsaers, 1999; Orgill, & Heaton, 2005; O’Rourke, 2005; Utne et al., 1984). These roles include work in the home and employment outside of the home. The roles between men and women have become more similar with women working more outside the home and, to a lesser degree, men working more in the home (Rogers & Amato, 2000). Perceptions of fairness in role distribution seem related to less conflict and perceptions of relational satisfaction and relational quality (Rogers & Amato, 2000).

*Satisfaction with global measures.*

Satisfaction research has also used global measures of satisfaction (Broman, 2002; Tallman & Hsiao, 2004; Utne et al., 1984; Whisman et al., 2006). Global measures have been used alone (Schumm et al., 2001) or frequently in combination with other specific relational item measures (Buunk, & Ybema, 2003; Fincham et al., 1995; Neff & Karney, 2004; Stanley, Amato et al., 2006). The term “global satisfaction” is a general or overall assessment of satisfaction or perception (i.e. How satisfied are you with your marriage, spouse, or relationship (such as the Kansas Marital Satisfaction Scale).

The third, fourth, and fifth most commonly used scales in research (Funk & Rogge, 2007) are the six item Quality Marriage Index (QMI), seven item Relationship Assessment Scale (RAS), and the three item Kansas Marital Satisfaction Scale (KMS). Some scales strictly use global items as in the KMS. Others such as the QMI and RAS
use mixed global and specific items which might be considered behavioral, functional, or relationship stability questions. A concern over confounding scale items with other variables of interest has led some researchers to utilize strictly global measures of satisfaction (Weigel & Ballard-Reisch, 1999a).

There are some interesting distinctions made in the interpretations and applications of specific and global satisfaction measures. McNulty and Karney (2001) found that specific items of satisfaction will impact global perceptions of satisfaction based on the positive or negative attributions assigned by the individual. Global evaluations are more resistant to change, but are influenced by the specific items. The positive or negative attributions act as mediators to determine the amount of influence specific items may have. For example, if an individual holds positive attributions toward their partner, negativity in specific aspects will be explained through circumstances outside of the partner to negate the influence from specific to global perceptions. Positive specific experiences will not be filtered out and may have a stronger capacity to influence global assessments for good. On the other hand, if a partner holds negative attributions, positive specific aspects will be filtered out to decrease their influence on the global, but negative specific aspects will maintain influence on the global perceptions of satisfaction. From another perspective it may be that fragile relationships have higher covariance between specific items and global items suggesting that day to day variations of positive and negative experiences may have more direct influences on global perceptions (McNulty & Karney, 2001).

More recent research has suggested that individuals have “latitude” in the importance applied to specific aspects. “For instance, though spouses may hold a variety
of accurate positive and negative perceptions of a partner, they may rate their positive
perceptions as more important than their negative perceptions” (Neff & Karney, 2005,
p.482). This supports the findings of prior researchers by suggesting that “global and
specific relationship perceptions operate quite differently within relationships” (Neff &
Karney, 2005, p.496)

*Concerns with present characterizations of satisfaction.*

Criticisms of marital measures like satisfaction and quality have been levied
against the use of these concepts in recent decades (Crohan & Veroff, 1989). These
critiques include the “complexity” of the concept and “lack of consensus” within research
(Crohan & Veroff, p 373). Some of the consensus problems are a matter of semantics in
which the terms of satisfaction, quality, happiness, adjustment, and stability are used
interchangeably or differently from one study to another (Fields, 1983; Johnson et al.,
1986). It is then difficult to compare findings among different studies because there are
too many variations in the measures behind the label of relational satisfaction (Bradbury
et al., 2000, Johnson et al., 1986). With no clear and agreed upon definitions of
relationship satisfaction one person’s conception of “satisfaction” may be another’s
conception of “quality”. For example, common tools such as the DAS and MAT are used
as satisfaction measure, but also include behavioral or process measures. While this
construction of a scale may result in a risk of amplifying the associations with relational
behaviors and processes (Bradbury et al., 2000), there is also a risk of confusion between
notions of satisfaction, quality, and behaviors as well as concepts of “individual and
collective properties” (Johnson et al, 1986, p.32).
Other researchers have suggested excessive error variance for the measures of DAS and MAT (Funk & Rogge, 2007) which may be the results of combining too many or inappropriate items (Johnson et al., 1986). Some researchers consider scales such as the MAT to contain a single dimension (Menchaca & Dehle, 2005), but if a scale such as the MAT actually contains multiple dimensions such as specific items and global measures, the results may impair subtle interpretations (McNulty & Karney, 2001). This is supported by evidence that separating some dimensions of relational measures allows researchers to detect important effects which might be otherwise obscured by single dimension measures (Menchaca & Dehle, 2005). Furthermore, when a single scale includes multidimensional items, the weighting of items due to the number of questions on a specific item or through statistical procedures must accurately reflect the groups being tested or the results will be biased or participants will be “misclassified” (Norton, 1983). Since one of the assumptions of a scale is that all groups being assessed have measurement equivalence (Stark et al., 2006) or measurement invariance. In other words, responses to an item must mean the same thing to different groups. Otherwise “differences between groups in mean levels or in pattern of correlations of the test with external variables are potentially artificial and may be substantially misleading” (Reise et al., 1993, p.552).

While multidimensional scales are commonly used, there is no direct evidence for the assumption that some of the different measures such as specific and global satisfaction are sufficiently “equivalent” to function appropriately in a scale (McNulty & Karney, 2001). This concern was more recently expressed by Funk and Rogge (2007):
At present, the measurement of relationship satisfaction has been operationalized with self-report scales. Although these measures have a large body of literature supporting their construct validity…they have never been systematically subjected to an item-level analysis in order to evaluate their current level of precision. This would be analogous to conducting 30 years of research on fevers and fever medications using the same brand of thermometers without knowing whether the thermometers were accurate to a single degree or to ±10° (p.572).

While the 1970’s witnessed the “appearance” and increase of multivariate analysis (Spanier & Lewis, 1980), it seems that recent years have suggested the need for analysis of dissected or univariate measures in order to explore variations among populations.

The question of applying current “satisfaction” measures to different population is addressed in more detail later in this paper. Also needing consideration is the challenge regarding the status of satisfaction as one of the main or best measure of relational quality (Carroll et al. 2005; Fowers, 1998; Fowers, 2000). Some researchers have found that relational characteristics such as liking, commitment, and control mutuality distinguish different couple types more strongly than satisfaction measures (Weigel & Ballard-Reisch, 1999b). This latter concern, while intriguing, is a topic for a different paper at a different time.

Longitudinal studies of marriage over time have suggested the need for assessments which can monitor changes in specific aspects of marriage (Kurdek, 1999). Specific conjecture has proposed that specific items of satisfaction such as the satisfaction with love, including passion, may decrease rapidly from the onset of
marriage. Other concepts such as commitment may actually increase over time (Kurdek, 1999).
Appendix D: Review of Methodology in Literature

Marital research is based on data using specific characterizations and statistical methods for manipulation of the data. Three different methods of examining scale measurement include scale reliability measures (e.g., Chronbach’s alpha), exploratory factor analysis, and confirmatory factor analysis (CFA). In recent studies, researchers often either use a single scale score for each participant, or they use a latent factor (using confirmatory factor analysis) within a structural equation modeling approach. When comparing different groups and with the use of different methods there may be questions regarding measurement equivalence (Raju et al., 2002; Reise et al., 1993).

*Latent variables from specific items*

Latent variables offer researchers an ability to explore valued and important concepts or constructs within the sometimes hazy realm of family and relationship science (DeVellis, 2003). Since researchers are generally interested in concepts that are difficult to encapsulate in one idea or one question, it can be very helpful to look for multiple items that in large part represent the larger concept (DeVellis, 2003). The smaller items are manifest and therefore measurable, but the larger concepts cannot be measured in this way and are therefore latent (DeVellis, 2003).

There are assumptions, while rarely tested, which must be addressed before ascribing interpretations of group differences and similarities in analysis such as confirmatory factor analysis (Vandenberg & Lance, 2000). First, the variables must be conceptually equivalent in each group, otherwise the researcher is “comparing apples and spark plugs” (Vandenberg & Lance, 2000, p.9). Another one of the assumptions of CFA measurement equivalence is that factor loadings are invariant or equivalent across groups (Raju et al., 2002; Vandenberg &
Lance, 2000). Another, “somewhat stricter” assumption would require that the error variances for each item also be equal and therefore reliable across two groups (Raju et al., 2002, p.519). Consistency in loadings and error variance would suggest equivalence in slope between the different groups. Finally, a comparison of group means is necessary to compare group intercepts (Raju et al., 2002).

Analytic procedures such as exploratory factor analysis and confirmatory factor analysis can and are frequently used to recognize manifest variables that can capture the larger concept of relationship satisfaction (Clements & Swensen, 1999; Schumm et al., 2001; Skinner et al., 2002). These same procedures are used to test or confirm the efficacy of existing measures among different populations (Fouquereau & Baudoin, 2002). Outside of scale construction or confirmation the use of latent variables in research of relational satisfaction appears rare.

Scales from specific items.

The use of scales as representations of satisfaction makes up the vast majority of research. Scales use in family science research are created and used to reflect latent conceptualizations of satisfaction. What the latent identity is expected to be is rarely named. Sometimes a scale is assumed to represent a global or overall satisfaction (Cox, Paley, & Burchinal, 1999; Gottman, 1994). Whether or not this is valid has not yet been tested.

Scales have been used for decades “to compare the strengths of attitudes within individuals, across individuals, and across groups” (Collins et al., 2000, p.451). There are standards that must be met to trust the accuracy of scales. Differences between groups may occur because the two groups are actually different, or because the measure is not accurate and the groups may or may not differ (Collins et al., 2000).
Are there any known concerns with the methodology of using scales in the analysis of satisfaction? First, specific measures of a scale should be “more or less equivalent ‘detectors’ of the phenomenon of interest” (DeVellis, 2003, p.74). A lack of equality may mean that the influences of stronger detectors are muted and the influences of weaker detectors are magnified, thus giving a less accurate report of quality. Among the most common scales used, only the MAT uses a weighted scoring system (Funk & Rogge, 2007), also referred to as “differential prediction” (Stark et al., 2006). If an assessment is not able to predict or measure intended concepts equally well across samples, its interpretations across groups cannot be equally interpreted. For example, marital scales used for husbands and wives “should fit the husband and wife subsamples in much the same way” (Johnson et al., 1986, p. 40) in order to confidently make interpretations and conclusions comparing and understanding both groups.

In summary, relationship satisfaction is a result of developmental processes. Researchers have demonstrated that different groups vary in the importance placed on specific items of satisfaction. This might affect the interpretations made from satisfaction surveys. Concepts such as marital satisfaction and quality can have multiple distinct components (Johnson et al., 1986). Appropriate interpretation of group differences in satisfaction means requires evidence that measurement scales are interpreted and incorporated equivalently among the groups. Yet, very little research has explored equivalence of measurement tools across different groups this step of analysis is frequently overlooked (Vandenberg & Lance, 2000).
Appendix E: Definitions and Use of SEM Terms

Confirmatory Factor Analysis Definitions

Indicators/measured variables.

The specific satisfaction measures of “physical intimacy”, “love you feel”, “how conflicts are resolved”, “amount of relational equality you experience”, and “quality of your communication” will be introduced as indicators or measured variables into a Confirmatory Factor Analysis Model using AMOS Graphics. Depending on the results of the EFA I would also like to test a CFA model with the overall relationship satisfaction measure included.

Latent factors.

I will use this model to confirm that the five or six measured variables work together in a latent variable of relationship satisfaction. Factors are assumed to represent an unmeasured concept which is revealed in all of the indicators, or measured variables. Therefore, a factor is assumed to make up some portion of each indicator. The factor loadings represent “unstandardized regression coefficients that estimate the direct effects of the factors on the indicators” (Kline, 2005, p.176), or the amount of a measured variable that is made up by the latent variable.

Factor loadings.

I will compare each of the five factor loadings within each of the six sub-groups, and between males and females within each group, and between couples across each of the three relationship type groups. Important variations in fit statistics will indicate that one or some of the factors load more heavily in the comparisons indicating that the latent variable directly affects one or some of the measured variables more strongly for one or some of the groups. Keep in
mind that the purpose of this part of the analysis is not to measure or compare group Means. The purpose of this analysis is to measure differences in the loading or importance of satisfaction in various areas on a latent/unmeasured variable of individual satisfaction in the relationship. Does satisfaction in the specific areas of intimacy, love felt, communication, conflict resolution, or roles load more or less heavily on the latent variable for one group or another? Do they load differently for males and females? Do they load differently for engaged couple, newly married couples, and couples married longer. Differently asked, are any of the specific items of satisfaction more or less important for latent satisfaction in general and/or for any of the other groups specifically?

Errors.

The error variances indicate the amount of the measured variable that is accounted for by anything other than the latent factor. Testing for group differences in error variances is seen as an extra high standard to test similarity (Kline, 2005). This would suggest that if the loadings and errors are the same across the three models, then we have an even greater assurance that the three groups are essentially the same in the manner that the latent variable influences the manifest variables. If any significant differences are found in error loadings, this will suggest that the latent measures do not account for all of the manifest variables the same.

Covariance.

In accordance with prior literature (Halford et al., 2007), an association between latent factors for male and female partners is assumed in this model. No directional influence is being assumed and so it is written as a covariance. Regarding the covariance among the error terms I will use a “multidimensional measurement” (Kline, 2005), in which errors are correlated within
the male and within the female models. In addition, each of the male errors will be correlated with the female errors for equivalent measures such as the error for satisfaction with communication for males correlated with the error for satisfaction with communication for females. Correlating errors will mean that I have reason to believe that the unaccounted for portions of the five measured variables are in some degree or in some way correlated. The purpose of correlating the errors is to allow comparison of the exact same models between sample groups while taking into account all reasonable correlations between the five measures of satisfaction within sexes and corresponding measures across sexes.

Path Model Definitions

*Observed variables.*

One of the most important steps when constructing a path model is the selection of observed variables (Kline, 2005). There are exogenous variables which are assumed to act on endogenous variable(s). In the case of this research proposal I will be testing the relationships of specific satisfaction items on latent marital satisfaction and on marital stability. The specific satisfaction measures of “physical intimacy”, “love you feel”, “how conflicts are resolved”, “amount of relational equality you experience”, “quality of your communication”, and “overall relationship” will be introduced into a structural equation (path) model using AMOS Graphics.

*Direct effects/paths.*

Paths are analyzed using multiple regression methods in which the correlation between two measures is estimated considering the influence of all other measures contained in the model (Kline, 2005). I am assuming that the specific satisfaction items are influencing the marital stability measure.
Important differences in model fit would suggest that one or some specific items of satisfaction more strongly predict relationship stability than other specific items. For example, satisfaction with love felt may predict the dependent variable more strongly than other satisfaction measures. As suggested by prior researchers, satisfaction with communication may be more strongly associated with overall satisfaction for females than for males. Satisfaction with physical intimacy may be more strongly associated for overall satisfaction for males than for females.

*Errors.*

Errors are included for all endogenous variables and “represent all causes of an endogenous variable that are omitted from the structural model…all unmeasured causes” (Kline, 2005, p.69). These unnamed exogenous variables are important to assess how much of the dependent variables are not accounted for in the model. Depending on EFA outcomes for this model, how much of “relationship stability” or “overall relationship satisfaction” is not accounted for by the independent variables.

There are only two errors in each model. Evidence of inequality between the male and female errors would suggest that the unaccounted for portions of the endogenous measures significantly larger for one gender than the other. Furthermore, indications of inequality of errors between sample groups will indicate that the unaccounted for portions of the endogenous measure varies between couple groups.

*Covariance.*

The covariances in a path model are similar to the covariances in the CFA model. While associated, no directional influence is assumed between variables connected with a covariance.
Covariances (for unstandardized measures) and correlations (for standardized measures) are represented by a curved line with an arrow head at both ends (Kline, 2005). The computer analysis of SEM such as AMOS uses matrix algebra methods (Kline, 2005). All five of the male exogenous variables (specific items) will be allowed to covary with each other, and all of the five of the female exogenous variables (specific items) will be allowed to covary with each other. The purpose of this is to control for the correlations between specific items. Since partner satisfaction is also correlated I will allow the latent satisfaction measure and each specific item of male satisfaction to correlate with the corresponding female specific item of satisfaction, i.e. female overall with love with male overall love, etc. The purpose of this is to control for partner effect on the loading of specific measures into the overall measure. As the within model comparisons of direct effects, I can test for important differences among specific items of satisfaction within specific subgroups, between genders, and between relationship types.
Appendix F: Bivariate Correlation Tables

Table 3 Bivariate correlations with Physical Intimacy

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<th>Physical Intimacy</th>
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Note: *p < 0.05, **p < 0.01
Table 3 continued- Bivariate correlations with Physical Intimacy

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Table 4.

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Table 7

Communication

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Table 8

Global Satisfaction = $S$

Relationship Stability = $S$

$= G$

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$HG$ and $WG$ and $HG$ and $HG$ and $WG$

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Table 9

Relationship Stability = \( S \)

\( WS \)

and

\( HS \)

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