TESTING RECIPROCAL RELATIONSHIPS BETWEEN MARITAL ATTITUDES, TIME SPENT TOGETHER, AND MARITAL SATISFACTION AMONG NEWLYWEDS: A CROSS-LAGGED PATH MODEL

by

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Abstract

The present study tests the reciprocal relationships between marital attitudes, time spent together, and marital satisfaction in a sample of newlyweds ($N = 1220$). Using cognitive dissonance theory and the investment model, this study tests two sets of theoretically derived unidirectional pathways to provide empirical evidence for longitudinal associations between these three constructs. Two separate models were tested, one for husbands, and one for wives. For both husbands and wives, results of the panel models indicated significant autoregressive paths among all three variables from T1 to T2, T2 to T3, and T1 to T3. Among husbands, significant cross-lagged paths emerged between T1 marital satisfaction and T2 marital attitudes, T1 marital satisfaction and T2 time spent together, T1 time spent together and T2 marital satisfaction, T2 time spent together and T3 marital satisfaction, and T2 time spent together and T3 marital attitudes. For wives, cross-lagged paths between T1 marital satisfaction and T2 time spent together, T1 time spent together and T2 marital satisfaction, and T2 time spent together and T3 marital satisfaction were found to be significant. Bootstrap test for indirect effects resulted in no significant mediating effects in the models. The results of these models are discussed and implications for future research and intervention are given.

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Chapter 1 - Introduction

Successful and satisfying marriages not only impact the health and well-being of the partners within the marriage, but also their families and the greater society. For example, research has shown that having a satisfying marriage is associated with one's overall health and well-being (Amato, 2010; Kamp Dush, Taylor, & Kroeger, 2008; Proulx, Helms, & Buehler, 2007) and better economic outcomes (Nock, 2005). A positive link between marriage and child welfare is also well-established in the literature (Popenoe, 2009). Yet, a large number of present day marriages end in divorce, with over half occurring within the first seven years of marriage (Cherlin, 1981; Shapiro, Gottman, & Carrere, 2000). It is important, therefore, to consider factors associated with marital satisfaction to promote stability of these relationships during the early years of marriage formation.

On one level, this is not new, as research on predictors of marital satisfaction continues to abound in the literature (see Bradbury, Fincham, & Beach, 2000; Fincham & Beach, 2010, Karney & Bradbury, 1995). The current literature, however, lacks sufficient consideration of the dynamic nature of predictors, generally assuming they are static or unchanging over time. Recent research has shown that such assumptions are untenable, as typical predictors of marital satisfaction do not remain static over time. Willoughby (2010), for example, found that marital attitude trajectories changed over time and previous studies have found that couples' time spent together changes over time due to a multitude of factors such as work responsibilities, presence of children, and individual expectations (e.g., Schoebi, Perrez, & Bradbury, 2012). A second limitation of the literature to date is the lack of empirical support for the temporal ordering of variables associated with marital satisfaction. Most studies generally assume, and therefore, test models where variables such as marital attitudes and time spent together as a couple predict marital satisfaction. These same studies fail to test whether alternative models are also tenable, such as marital satisfaction predicting time spent together as a couple (for exceptions, see Amato & Rogers, 1999; White, 1983; Zuo, 1992).

The purpose of the current study, therefore, is to test the reciprocal relationship between marital attitudes, time spent together as a couple, and marital satisfaction among newlyweds using longitudinal data. This research will contribute to the literature by providing a response to

the question of longitudinal directionality: which came first, the attitudes, the behaviors, or the satisfaction? It may be, however, that these relationships are not unidirectional but mutually influence each other over time. By analyzing the mutual influences of marital attitudes, time spent together, and marital satisfaction, this study will provide empirical evidence for either a linear or reciprocal association between these three constructs over time. Furthermore, clinicians and educators may apply these findings to possible interventions for married couples with different presenting complaints (e.g., differences in perspectives, lack of marital happiness, and dissatisfaction with couple activities) with additional insight on how problems in one area may affect dissatisfaction in another area over time.

Chapter 2 - Literature Review

Marital attitudes (or beliefs about marriage) and behaviors in the relationship, such as time spent together, have commonly been accepted as precursors to marital satisfaction (Bradbury et al., 2000). Yet, researchers have also found support for the reverse notion that marital satisfaction leads to changes in marital attitudes or behaviors (e.g., Amato & Rogers, 1999; White, 1983; Zuo, 1992). A further look at the associations between these constructs demonstrates that there are competing arguments as to the proper temporal ordering between them.

Marital Attitudes and Marital Satisfaction over Time

The term *marital attitudes* has been defined in multiple ways in the research literature, but generally refers to "the cognitive meaning attributed to marriage as an institution" (Willoughby, 2010, p. 1307). Recent work by Hall (2006) proposes that there are several dimensions that contribute to how individuals make meaning of the word "marriage". One of the primary dimensions of marital meaning is the perception of marriage as a special status ("the ultimate expression of love") rather than a neutral alternative relationship ("just a piece of paper") (Hall, 2006, p. 1477). This study, as most previous studies (e.g., Braaten & Rosen, 1998; Campbell & Wright, 2010) will operationalize marital attitudes by addressing the special status dimension of marital meaning.

Previous research testing marital attitudes as a predictor of marital satisfaction found that endorsement of more traditional (e.g., seeing it as a special status) marital attitudes, consistency with gender role stereotypes, and similarity between partners' attitudes were related to greater marital satisfaction (e.g., Acitelli, Kenny, & Weiner, 2001; Bradbury, Fincham, & Beach, 2000; Lye, & Biblarz, 1993). Fewer studies have addressed the prospect of marital satisfaction as an antecedent to marital attitudes. Apart from the majority, Amato and Rogers (1999) tested the bi-directional relationship between marital satisfaction and attitudes towards divorce. The authors found that more accepting attitudes towards divorce were predictive of lower marital satisfaction but that lower marital satisfaction also led to adopting greater prodivorce attitudes (Amato & Rogers, 1999). Although Amato and Rogers (1999) suggested that attitudes in favor of divorce were associated with lower levels of marital satisfaction, their study did not provide insight as to

the temporal ordering of these two variables due to the bi-directionality of these paths being tested at the same time point. Currently, the literature on the temporal ordering of these constructs, to my knowledge, does not exist. The current study seeks to contribute knowledge to the link between marital attitudes and marital satisfaction by empirically testing the reciprocal relationship between them across three time points.

Time Spent Together and Marital Satisfaction over Time

It has been consistently established that engaging in activities together as a couple is related to relationship quality, with time spent together typically occurring prior establishing marital satisfaction (White, 1983). In her study, however, White (1983) found that happiness in one's marriage is actually a stronger determinant of time spent together as a couple than the inverse direction, counter to previous findings of causal relationships in the literature. Yet, Smith, Snyder, Trull and Monsma (1988) found that leisure time between spouses alone (i.e., no others involved) consistently predicted relationship satisfaction throughout the life cycle. The inconsistency in these findings suggests a need for further exploration.

Similarly, Zuo (1992) tested the reciprocal effects of time spent together and marital happiness over three time points and found an overall positive relationship between the variables. Specifically, with use of structural equation modeling, Zuo (1992) concluded that, at time two, marital happiness had a larger impact on time spent together, but at time three, the bidirectional effects were about equal in size. However, the results indicated significant variation in their findings due to the duration of the marriage and no test for cross-lag effects was conducted. Thus, although Zuo (1992) addressed the reciprocal relationship between time spent together and marital happiness, variation in their findings are addressed in the present study through tests of cross-lagged paths and a restriction to newlywed husbands and wives. Furthermore, this study intentionally focuses on the newlywed years because it is a distinctive stage of marriage where pivotal transitions occur such as becoming a parent (Lavner & Bradbury, 2010) and when divorces are more likely to occur (Bramlett & Mosher, 2002; Cherlin, 1981).

Time Spent Together and Marital Attitudes over Time

The majority of studies commonly suggest a temporal ordering presuming that cognitions (e.g., marital attitudes) precede behaviors through a cognitive-behavioral perspective (e.g.,

Johnson & Anderson, 2013). A few other studies have demonstrated that bi-directionality may also hold true (e.g., Amato & Rogers, 1999). Recent studies have begun to analyze the associations between marital attitudes and relationship behaviors. For example, one study addressed how attitudes towards marriage and cohabitation were associated with sexual experiences in young adulthood (Willoughby & Carroll, 2010). Moreover, Simons, Simons, Lei, and Landor (2012) found an effect of behaviors to attitudes to behaviors to attitudes in a study of familial experiences influencing romantic relationships among African-American young adults. Specifically, they found that harsh experiences during childhood led to negative schemas about romantic relationships which then promoted hostility in the couple relationship which in turn reinforced negative views of marriage (Simons et al., 2012).

To my knowledge, however, the reciprocal process between the specific constructs of marital attitudes and time spent together has not yet been tested. Testing the relationship between these variables over time will provide further understanding of how these effects change and mutually influence one another over the first few years of marriage. Together, findings from the present study and other recent works on the complex lag effects of attitudes and behaviors will better inform researchers and clinicians of the trajectory of marital behaviors and attitudes to guide further research and clinical interventions.

Theoretical Framework

Previous literature has yet to define an overarching theoretical explanation for the longitudinal associations between these constructs. The aforementioned studies have demonstrated inconsistent explanations for the links between the constructs of marital attitudes, time spent together, and marital satisfaction. The divergent findings suggest a need to understand the links between these constructs and how they vary over time in relation to one another. Two competing theories will be used to guide the present study's research questions, analytic methods, and interpretation of the findings: cognitive dissonance theory (Festinger, 1957) and the investment model (Rusbult, 1980). These two theoretical perspectives provide alternative explanations for the relationships between the variables. Figure 1 depicts the proposed model with hypothesized directional paths based on the two theoretical frameworks. Autoregressive paths and correlated variances and residuals will be tested but are not included in the figure for clarity.

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Cognitive Dissonance Theory

This theory posits that individuals experience distress, or cognitive dissonance, when there is an inconsistency between what one believes and how one behaves (Festinger, 1957). Persons who experience cognitive dissonance will be motivated to reduce the feeling of distress by achieving consistency between conflicting beliefs and behaviors.

Amato and Rogers (1999) applied cognitive dissonance theory to understanding the relationship between marital satisfaction and attitudes towards divorce suggesting that marital quality can influence one's attitudes towards divorce. This hypothesis is in line with cognitive dissonance theory in that it is expected that one will adjust his or her attitudes to be more in line with his or her subjective experience (satisfaction in the marriage). In the current study, cognitive dissonance theory would suggest that one will alter marital attitudes at a later time point to fit with previously reported marital satisfaction to resolve experiences of dissonance. More so, cognitive dissonance theory proposes that one will change or adopt the variable that is less resistant to change when experiencing an inconsistency (Harmon-Jones & Harmon-Jones, 2002). Taken together, the theory would suggest that when a discrepancy exists between two cognitions, it is expected that one will alter the less strong cognition, perhaps even the one that may be less stigmatizing to change. Persons dissatisfied in their relationships, therefore, would be expected to adopt more neutral attitudes towards the institution of marriage (i.e., decreased importance of being part of a marital union) rather than perceiving marriage to hold a lot of value in order to minimize experiences of dissonance.

The link between time spent together as a couple and marital satisfaction can also be explained through cognitive dissonance theory. According to Harmon-Jones and Harmon-Jones (2002), the action-based model of cognitive dissonance suggests that individuals will assess a decision based on their chosen behavior. Specifically, the theory argues that one is more apt to adjust his or her attitudes to be congruent with their behaviors (Amato & Rogers, 1999; Harmon-Jones & Harmon-Jones, 2002). Those who more frequently engage in activities as a couple, according to the theory, will report being more satisfied later in the relationship as to align their subjective experiences in the relationship with their behaviors.

Lastly, cognitive dissonance theory would suggest that spouses who frequently engage in couple activities will be more likely to report positive attitudes towards marriage. In a recent study, Hall and Adams (2012) found that couples in the early stages of marriage engaged in

certain types of cognitive coping strategies to decrease the experience of dissonance between their expectations and actual experiences, suggesting that changes in cognitions or cognitive-coping are more readily adopted than changing the actual experiences in the relationship. This reasoning is similar to the proposed direction of time spent together to marital satisfaction given that attitudes and satisfaction are both cognitive constructs of marital meaning. Therefore, if one is not spending much time with their partner, then they will most likely alter their attitudes to have a more neutral outlook towards marriage.

Investment Model

Based on the concept of maximizing rewards and minimizing costs, the investment model posits that greater satisfaction in one's relationship should increase one's commitment to doing things to maintain the relationship (i.e., invest in it; Rusbult, 1980; Rusbult, 1983). Additionally, commitment to investing in the relationship is also influenced by one's perceptions of the quality of alternative options and the size and/or cost of the investments (Rusbult, 1980; Rusbult, 1983). Rusbult noted that "persons who report intent to maintain their involvements should also report feelings of psychological attachment," (Rusbult, 1983, p. 102).

Rusbult's (1983) statement that one's "commitment to maintain a relationship should increase the extent that he or she is satisfied with that involvement," (p.22) can be applied to the present study in that marital attitudes and meanings attributed to marriage demonstrate the concept of commitment. For example, respondents in this study are asked to indicate their agreement to the notions that divorces should be harder to obtain or that marriage is a lifelong commitment. Those that initially indicate agreement with the permanency of marriage (a favorable marital attitude), according to the investment model, should be more likely to report greater marital satisfaction later. Amato and Rogers (1999) tested exchange theory, which has similar conceptualizations to the extensions proposed in the investment model. The authors tested the notion that pro-divorce attitudes would lead to decreased marital quality (Amato & Rogers, 1999). As previously suggested by Rusbult (1983), satisfaction is a factor determined by rewards in the relationship. If individuals perceive marriage to be special, important, and hold a lot of meaning, then being married should be considered rewarding leading to greater satisfaction. Thus, the investment model should support the notion that viewing marriage favorably leads to greater marital satisfaction.

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The investment model can also be used to explain the relationship between cognitions and behaviors. Rusbult (1983) found that increases in relationship satisfaction led to greater commitment. Also, contrary to previous findings at the time, another study found that marital happiness has a larger effect on time spent together than the inverse (White, 1983). This suggests that those who report being satisfied in their relationship will commit or invest more in the relationship by spending time with their partner. In the present study, the investment model would suggest that an individual will subsequently engage in more time with their spouse if they reported being satisfied in the relationship.

Lastly, the investment model would suggest a similar direction from marital attitudes to time spent together as with time spent together and marital satisfaction. Namely, individuals will subsequently invest by spending more time with their partner if they had previously indicated that marriage holds a special meaning rather than if they had indicated neutral attitudes towards marriage. The temporal precedence of attitudes preceding behavior in the investment model was somewhat supported in Amato and Roger's work (1999). The authors found a small cross-sectional effect from marital attitudes to time spent together at Time 2 and did not find any significant effects of time spent together to attitudes.

As these two theories demonstrate, there is no definitive absolute as to the directionality of the relationships between marital attitudes, time spent together, and marital satisfaction. By using both cognitive dissonance theory and the investment model as two viable frameworks in the same model, these findings will provide a better understanding as to which theoretical perspective better explains the associations between these constructs over time. Because previous research has demonstrated limited support for both theories, the simultaneous testing of paths proposed by both frameworks will provide empirical evidence for the more accurate temporal ordering of these constructs.

Gender Specific Effects

It is important to address differences among husbands and wives when examining marital satisfaction. In a study of the trajectory of marital satisfaction amongst newlyweds, Lavner and Bradbury (2010) found that wives had more positive marital satisfaction trajectories than their husbands'. In a study of gender role attitudes and marital happiness in later life, egalitarian attitudes were associated with greater marital happiness for men but not for women (Kaufman &

Taniguchi, 2006). In another longitudinal study, Kurdek (1998) found that wives and husbands did *not* differ in marital quality decline in the early years of marriage when considering the impact of depressive symptoms. However, the authors did note a reciprocal pattern in their findings. In sum, these findings suggest a continued importance of recognizing differences in patterns of attitude and marital satisfaction for women and men as well as analyzing the reciprocal nature of these effects.

Present Study

Bradbury et al. (2000) suggested that in order to achieve progress in understanding marital satisfaction, researchers should consider the existing theoretical explanations, use longitudinal dyadic data, address the factors that explain changes in marital satisfaction, and compare competing theories. All of these recommendations will be addressed in the present study. The purpose of the current study is to test the longitudinal and reciprocal relationships between marital attitudes, time spent together, and marital satisfaction among couples in the early stages of marriage. Despite the wealth of literature on the relationship between cognitions, behaviors, and marital satisfaction (e.g., Acitelli et al., 2001; Lavee & Katz, 2002; Minnotte, Minnotte, Pedersen, Mannon, & Kiger, 2010) many have surprisingly neglected to address how each of these constructs may independently vary with one another over time. Both Amato and Rogers (1999) and Zuo (1992) addressed the possibility of bi-directional effects but because the bi-directional paths were tested at the same time point, the findings cannot provide any insight regarding the possible lag effect that may contribute to a change in the relationship over time. The current study seeks to test the reciprocal effects temporally across three time points to determine the cross effects between attitudes and behaviors. By using a cross-lagged panel analysis, the design of this study enables testing of the reciprocal relationships between marital attitudes, time spent together, and marital satisfaction. Cognitive dissonance theory and the investment model are the theoretical frameworks guiding hypothesis development, the analyses and the interpretation of the results in this study.

Findings of this study will inform relationship researchers and clinicians on the reciprocal relationship between these constructs and provide empirical evidence for temporal ordering or bidirectional effects between them. Two sets of hypotheses will be tested in the current study. The first set of hypotheses is based on the assertions suggested by cognitive dissonance theory.

The second set of hypotheses is grounded in the claims made by the investment model. Findings in support of one set of hypotheses will suggest that there is a consistent temporal ordering in the direction suggested by a particular theoretical framework. Findings that partially support both sets of hypotheses will provide evidence for bi-directionality between the constructs and demonstrate that, certain associations may be better explained by one theory over another, but that there is not a consistent explanation across constructs or time.

Cognitive Dissonance Theory Hypotheses (Set 1)

H1a: There will be a positive relationship between Time 1 marital satisfaction and Time 2 marital attitudes and Time 2 marital satisfaction will be positively related to Time 3 marital attitudes.

H1b: There will be a positive relationship between Time 1 time spent together and Time 2 marital satisfaction and Time 2 time spent together will be positively related to Time 3 marital satisfaction.

H1c: There will be a positive relationship between Time 1 time spent together and Time 2 marital attitudes and Time 2 time spent together will be positively related to Time 3 marital attitudes.

Investment Model Hypotheses (Set 2)

H2a: There will be a positive relationship between Time 1 marital attitudes and Time 2 marital satisfaction and Time 2 marital attitudes will be positively related to Time 3 marital satisfaction.

H2b: There will be a positive relationship between Time 1 marital satisfaction and Time 2 time spent together and Time 2 marital satisfaction will be positively related to Time 3 time spent together.

H2c: There will be a positive relationship between Time 1 marital attitudes and Time 2 time spent together and Time 2 marital attitudes will be positively related to Time 3 time spent together.

Lastly, indirect paths from variables at Time 1 to those at Time 3 will be tested via effects through variables at Time 2 to determine the presence of mediation within the model over the three time points. These results will provide a greater understanding as to how these variables vary in relation to one another over time. Results will be interpreted through support of a single

set of hypotheses which will suggest a consistent directional lag relationship or a mixture of findings suggesting reciprocity and variation in influences over time between the constructs.

Chapter 3 - Method

Sample and Procedures

The present study used longitudinal data from the Marriage Matters Panel Survey of Newlywed Couples conducted between 1998 and 2004 in the state of Louisiana (Nock, Sanchez, & Wright, 2008).This statewide survey was originally conducted to examine potential changes in divorce rates, marital quality, and other relationship factors as a result of the covenant marriage law enacted in 1997 in the state of Louisiana. Covenant marriages made it more challenging to enter and terminate marriages, specifically requiring those who enter a covenant marriage to engage in premarital counseling prior to getting married and if they wanted a divorce, to seek counseling before the divorce could be granted.

The current sample consists of 1220 individuals (610 heterosexual married couples) in conventional and covenant marriages. Data were obtained through Louisiana marriage licenses of 17 randomly selected Louisiana parishes (i.e., counties). Within the 17 parishes, all covenant and standard marriage licenses were obtained with standard licenses over-sampled to account for greater likelihood of attrition in this subsample based on the presenting interests of the study. Survey data were collected in three waves. Wave 1 data were collected 3 to 6 months following the couple's marriage, Wave 2 data were collected approximately two years following marriage or 18 months following the collection of Wave 1 data, and Wave 3 data were collected around 3 to 4 years following marriage, or between 12 to 24 months following Wave 2.

A total of 1,714 valid marriage licenses were included in the sampling frame. Of those, 1,310 were confirmed as married couples with 707 of the couples responding to and completing the first administered survey. Only couples that remained married throughout all three waves (n=610 couples) were included in this sample. The majority (62.6%) of the couples were in their first marriage. The mean age for women was 28.49 (SD = 8.83) and 30.61 (SD = 9.80) for men. Both men and women completed an average of 14 years of schooling (i.e., began college). The majority of the sample identified as White (men = 82.8%, women=80.0%), 13.9% of women and 13.1% of men identified as African American, and roughly 5% indicated being of another ethnicity. Of the couples included in this sample, 55% indicated being in a standard marriage and 45% in a covenant marriage.

Measures

Marital Attitudes

This 8-item marital attitudes scale was developed by Nock, Sanchez, and Wright (2008) specifically for the purpose of the Marriage Matters Panel Survey of Newlywed Couples. Items included statements such as "Being married is one of the most important things in life" and "Society would be better off if divorce was harder to get." Respondents were asked to answer on a scale of 1 = *strongly agree* to 5 = *strongly disagree* to what extent they agreed with the statements. Items were coded so that higher scores on the scale were indicative of more traditional marital attitudes with lower scores suggesting less traditional attitudes. Scores on individual items were summed and divided by the number of items in order to obtain a mean scale score. Cronbach's alpha indicated good reliability in this sample over all three time points (wave 1 for husbands: $\alpha = .77$, wives: $\alpha = .75$; wave 2 for husbands: $\alpha = .74$, wives: $\alpha = .73$; wave 3 for husbands: $\alpha = .76$, wives: $\alpha = .76$).

Time Spent Together

Time spent together was measured using 10-items that asked respondents to indicate how often per week they engage in the stated activity. Possible responses ranged from 1 = *never* to 6 = *every day*. Items addressed several dimensions of time together as a couple including general time together (e.g., calmly discuss an issue), physical intimacy (e.g., kiss, have sexual relations), and activities at home (e.g., have a meal together at home). Responses were summed and then averaged to achieve the mean scale score. Cronbach's alpha reliability at wave one for husbands was .83 and for wives was .82. Wave two (husbands: $\alpha = .82$, wives: $\alpha = .81$) and wave three (husbands: $\alpha = .84$, wives: $\alpha = .86$) reliabilities were also high.

Marital Satisfaction

Marital satisfaction was assessed with several dimensions. Respondents answered on a scale of 1 = *very dissatisfied* to 5 = *very satisfied* how satisfied they were with each stated aspect of their marriage. Statements included aspects such as physical intimacy, how conflicts are resolved, and degree of fairness. A total of 7 items were summed and then averaged to compute the mean scale score. Higher scores indicated greater marital satisfaction. Reliability of the scale was found to be high in this sample throughout all three time points as indicated by Cronbach's

alpha (wave 1 for husbands: α = .90, wives: α = .90; wave 2 for husbands: α = .89, wives: α = .91; wave 3 for husbands: α = .91, wives: α = .91).

Control Variables

Several covariates, or control variables, were added to the present study's model. Research has shown that those in remarriages are more prone to divorce and report lower marital quality (Whitton et al., 2013), thus, it was important to control for whether individuals in this study are in their first marriage or in a remarriage. Number of marriages were dummy coded so that 0 = *currently in first marriage* and 1 = *second or subsequent marriage.* New parents also experience a sharper rate of decline in marital satisfaction in the early years of marriage compared to those who do not become parents (Doss, Rhoades, Stanley, & Markman, 2009; Shapiro et al., 2000), thus, presence of children at all three time points was also included as a control variable in the model. Presence of children in the home was coded so that 0 = *no children in the home* and 1 = *children in the home*.

Demographics of age, income, and education were also included as control variables in the model as research has previously demonstrated that they affect marital outcomes such as stability and satisfaction (Karney & Bradbury, 1995). Respondents were asked to state their age at the time of the first survey. Income was reported on intervals ranging from 1 = *no income* to 13 = *$100,000 or more.* At the first wave, education was denoted by the number of school years completed (i.e., 12 = *12th grade/GED*). At the second and third waves, the question was revised and participants were asked to indicate their education level within the provided ranges (1 = *did not finish high school/no certificate*, 2 = *vocational, technical, or training school*, 3 = *GED*, 4 = *high school graduate*, 5 = *special education degree or certificate*, 6 = *bachelor's degree*, 7 = *master's degree*, 8 = *doctorate or professional degree*).

Finally, previous findings have found support for religious involvement positively impacting marital outcome and quality (Fincham & Beach, 2010; Wolfinger & Wilcox, 2008). Therefore, frequency of religious service attendance, importance of religion or faith, and covenant versus standard marriages were also included as controls in the model. Religious attendance was measured by the frequency in which one attended religious services (0 = *never*, 1 = *less than once a year*, 2 = *about once or twice a year*, 3 = *several times a year* increasing in frequency to 7 = *several times a week*). Importance of religion or faith, a unique construct

distinct from religious attendance, was also controlled for. Respondents were asked to indicate the importance of religious faith in their life (1 = *not at all important* to 5 = *extremely* important). Lastly, respondents' current type of marriage was controlled for with 0 = *standard marriage* and 1 = *covenant marriage.*

Analytic Plan

Data were first explored through descriptive statistics. Descriptive statistics for measures included in the current study are displayed in Table 1. Items were included in the aggregate measured variables based on previously validated scales of the constructs (e.g., marital satisfaction; Nock et al., 2008) or determined via exploratory factor analyses. Bivariate correlational analyses were conducted between all model and control variables across the three time points (refer to Table 2 for zero-order correlations). These preliminary analyses were completed in SPSS Version 19 (IBM Corporation, 2010). Data were then modeled and analyzed using Mplus 6.0 (Muthén & Muthén, 1998-2012). Missing data were handled using full-information maximum likelihood (FIML), noted in the literature (e.g., Acock, 2005) as the preferred method for handling missing data over others such as listwise deletion, pairwise deletion, or mean substitution. According to Kenny, Kashy, and Cook (2006), men and women are empirically different from one another. Due to these purported differences, two separate cross-lagged panel analyses were conducted to test the reciprocal relationships and stability of marital attitudes, time spent together, and marital satisfaction among husbands and wives in the present sample. Next, covariates were included to account for variance in the model variables that were due to demographic effects. Non-significant covariate effects were pruned from each model and the most parsimonious model was retained. Finally, bootstrap analyses with 2,000 bootstraps were conducted to test for indirect effects and temporal ordering of the variables (Preacher & Hayes, 2008).

Chapter 4 - Results

Correlations

Results of the correlation analyses demonstrated significant bivariate associations between each variable's autoregressive values. For instance, the relationships between marital satisfaction at T1, T2, and T3 can all be interpreted as significant moderate and strong positive correlations. A specific interpretation is that, for husbands, T1 marital satisfaction was positively correlated with T2 ($r = .49$, $p < .01$) and T3 ($r = .51$, $p < .01$) marital satisfaction. For wives, T1 marital satisfaction was positively correlated with T2 ($r = .55$, $p < .01$) and T3 ($r = .50$, $p < .01$) marital satisfaction.

Correlations between the model variables at the same time point varied in significance. At each time point, relationships between marital satisfaction and time spent together were significant for both husbands and wives. That is, for husbands, higher levels of T1 marital satisfaction were positively related to higher levels of T1 time spent together ($r = .61$, $p < .01$). The same positive associations were found at T2 and T3 for both partners. Relationships between time spent together and martial attitudes, however, were insignificant at the bivariate level for both partners, with the exception of husbands at T3. Time spent together was significantly positively correlated with marital attitudes ($r = .10$, $p < .05$) for husbands at T3. Certain correlations between marital attitudes and marital satisfaction were significant. For instance, for wives, higher levels of T3 marital attitudes was correlated with higher levels of T3 marital satisfaction ($r = .14$, $p < .05$).

Across time, several bivariate relationships between model variables were significant. For example, wives' T2 marital satisfaction was significantly related to her own marital attitudes at T3 ($r = .10$, $p < .05$). For husbands, T1 time spent together was significantly related to T3 marital satisfaction ($r = .42$, $p < .01$). For some variables, T1 to T3 correlations were also significant. For example, for husbands, T1 marital satisfaction was significantly positively correlated with T3 time spent together ($r = .34$, $p < .01$).

Correlation results for control variables indicated greater effects for some model variables more so than others. Specifically, marital attitudes appeared to be significantly related to several control variables at each time point (e.g., for wives, remarriage and T1 marital attitudes were correlated at $r = -.14$, $p < .05$). Complete results of the correlation analyses are

displayed in Table 2. These results provide preliminary information regarding the relationships among variables and merit further analyses through cross-lagged panel models.

Cross-Lagged Panel Model

In each model, theoretically derived cross-lagged paths and autoregressive paths from T1 to T2, T2 to T3, and T1 to T3 were tested. Initial model fit indices of the both the husbands' and wives' models without controls indicated excellent fit between the model and the data based on Kline's (2011) suggestions for appropriate values: $\chi^2(6) = 4.10$, $p=.66$; RMSEA = .000 (C.I. = .000, .046); CFI = 1.000; TLI = 1.008; SRMR = .014 for husbands and $\chi^2(6) = 11.92$, $p=.06$; RMSEA = .041 (C.I. = .000, .075); CFI = .997; TLI = .984; SRMR = .016 for wives. Zero-order associations were tested between Time 1 variables as they are not predicted by any other variables. Residual variances between the model variables at each respective time point were correlated with one another.

Prior to accepting the estimates of the theoretical model, I included covariates to evaluate whether any of the paths would significantly change after controlling for the effects of the covariates. All time variant and time invariant covariates were added in both husbands' and wives' models. Each of the model variables were regressed on the time variant covariates at their respective time points. For example, T3 marital attitudes was regressed on T3 religious attendance. All subsequent model variables were also regressed onto the time invariant covariates to control for their effects at each time point. For example, T3 time spent together and T2 time spent together were both regressed on years of education. Model variables at Time 1(i.e., T1 marital attitudes, T1 time spent together, and T1 marital satisfaction) were treated as endogenous variables and regressed on all covariates measured at Time 1. The model with all covariates included had good fit for both husbands and wives: $\chi^2(78) = 100.06$, $p=.05$; RMSEA = .023 (C.I. = .003, .036); CFI = .987; TLI = .971; SRMR = .019 and $\chi^2(78) = 89.25$, $p=.18$; RMSEA = .016 (C.I. = .000, .029); CFI = .996; TLI = .990; SRMR = .016 respectively. The regressive paths in the model between covariates and model variable, however, were largely insignificant. This was not surprising given that the majority of correlations between the covariates and the model variables were insignificant. Little (2013) suggests that an accurate approach to handling non-significant covariate effects is to remove them from the model and retain significant and marginally significant effects. Thus, for clarity, non-significant effects

were pruned and only significant covariates within each model were included in the final models. Covariates without any significant regressive paths were dropped from the model entirely (i.e., T1, T2, and T3 income, T2 religious attendance, T2 and T3 presence of children, and T3 faith importance for husbands; T1 and T3 income, T1 age, T3 religious attendance, and T3 faith importance for wives).

The pruning of covariates from the model resulted in the most parsimonious model. The model was then evaluated for direct effects between model variables. All cross-lagged and autoregressive paths between model variables were retained during the pruning process. The final models had good fit to the data according to Kline's (2011) guidelines. For husbands, model fit indices were χ^2 (71) = 82.234, p = .170; RMSEA = .018 (C.I. = .000, .032); CFI = .993; TLI = .989; SRMR = .032. For wives, the model was equally well-fitting: χ^2 (78) = 87.715, p = .212; RMSEA = .015(C.I. = .000, .028); CFI = .996; TLI = .994; SRMR = .024.

Results indicated that autoregressive paths for both husbands and wives at Time 1 were significant. Specifically, levels of marital attitudes, time spent together, and marital satisfaction significantly predicted subsequent levels of the equivalent construct at both Time 2 and Time 3. Moreover, constructs at Time 2 significantly predicted their own values at Time 3. All autoregressive paths for husbands and wives are displayed in Figures 2 and 3. Cross-lagged paths between each model variable at Time 1 to Time 2 and Time 2 to Time 3 were tested and several significant effects emerged. All cross-lagged paths are also presented in Figures 2 and 3. Significant autoregressive and cross-lagged paths for husbands and wives are discussed next.

Husbands

For husbands, autoregressive paths from T1 to T2 marital attitudes (β =.59, $p < .001$), T2 to T3 marital attitudes (β =.35, $p < .001$), T1 to T3 marital attitudes (β =.34, $p < .001$), T1 to T2 time spent together (β =.53, $p < .001$), T2 to T3 time spent together (β =.43, $p < .001$), T1 to T3 time spent together (β =.15, $p < .01$), T1 to T2 marital satisfaction (β =.42, $p < .001$), T2 to T3 marital satisfaction (β =.48, $p < .001$), and T1 to T3 marital satisfaction (β =.22, $p < .001$) were all significant.

Results of the cross-lagged paths indicated that higher levels of marital satisfaction at Time 1 predicted marital attitudes at Time 2 (β =.16, $p < .001$); however, from Time 2 to Time 3, this effect was not significant, (β =.06, $p = .122$). Other significant cross-lagged paths

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emerged from T1 marital satisfaction to T2 time spent together (β =.11, p < .05), T1 time spent together to T2 marital satisfaction (β =.15, p < .01), and T2 marital satisfaction to T3 time spent together (β =.16, p < .01). Two paths were also trending towards significance: T2 time spent together to T3 marital attitudes (β =.08, p < .10) and T2 time spent together to T3 marital satisfaction (β =.09, p < .10). The first set of paths can be interpreted as marital satisfaction at the beginning of marriage is a significant predictor of marital attitudes 18 months later. Marital satisfaction at 18 months into the marriage, however, does not predict levels of marital attitudes approximately one to two years later. Husbands' marital attitudes at Time 2 positively predicted his own marital attitudes at Time 3 (β =.35, p < .001).

Controlling for effects of covariates at Time 1, residuals of T1 time spent together and T1 marital satisfaction were positively correlated with each other (r = .54, p < .001). At Time 2, controlling for Time 1 effects, T2 time spent together error was also significantly correlated with T2 marital satisfaction (r = .53, p < .001). Finally, controlling for effects from Time 2, Time 3 residual terms were correlated with each other (r = .12, p < .05 for T3 marital attitudes and T3 time spent together; r = .59, p < .001 for T3 time spent together and T3 marital satisfaction).

Wives

For wives, all autoregressive paths were also significant. Specifically, positive associations from T1 to T2 marital attitudes (β =.57, p < .001), T2 to T3 marital attitudes (β =.54, p < .001), T1 to T3 marital attitudes (β =.28, p < .001), T1 to T2 time spent together (β =.52, p < .001), T2 to T3 time spent together (β =.64, p < .001), T1 to T3 time spent together (β =.15, p < .001), T1 to T2 marital satisfaction (β =.52, p < .01), T2 to T3 marital satisfaction (β =.45, p < .001), and T1 to T3 marital satisfaction (β =.16, p < .001) were found between all variables across time.

Cross-lagged path results for wives indicated that higher levels of T1 marital satisfaction predicted more T2 time spent together (β =.17, p < .001) but T2 marital satisfaction did not predict T3 time spent together (β =.00, p = .94). Other significant cross-lagged paths emerged from T1 time spent together to T2 marital satisfaction (β =.10, p < .05) and T2 time spent together to T3 marital satisfaction (β =.14, p < .01). No significant cross-lagged paths to or from marital attitudes emerged for wives.

Error terms for wives were similarly correlated as was for husbands. Controlling for effects of covariates at Time 1, residuals of T1 time spent together and T1 marital satisfaction were positively correlated with each other ($r = .61$, $p < .001$). Controlling for Time 1 effects, T2 time spent together and T2 marital satisfaction error terms were also significantly correlated ($r = .58$, $p < .001$). Lastly, T3 time spent together and T3 marital satisfaction error terms were also significantly correlated after controlling for Time 2 effects ($r = .61$, $p < .001$).

Overall, the models accounted for a significant amount of variation in all endogenous variables. For husbands, the model accounted for 41% of the variance in T2 marital attitudes, 34% of the variance in T2 time spent together, 27% of the variance in T2 marital satisfaction, 50% of the variance in T3 marital attitudes, 43% of the variance in T3 time spent together, and 48% of the variance in T3 satisfaction. For wives, the model accounted for 46% of the variance in T2 marital attitudes, 43% of the variance in T2 time spent together, 34% of the variance in T2 marital satisfaction, 58% of the variance in T3 marital attitudes, 55% of the variance in T3 time spent together, and 44% of the variance in T3 satisfaction. The results of the cross-lagged panel models paved the way for tests of indirect effects from constructs at Time 1 to Time 3.

Bootstrap Test of Indirect Effects

Indirect effects between Time 1 variables and Time 3 variables were tested using a bootstrapping analysis with 2,000 bootstraps and a 95% confidence interval. Table 3 displays all the indirect tests conducted in the model. Surprisingly, results of the bootstrap analyses indicated no significant indirect pathways in either of the models. Interpretations of these insignificant mediating effects are deliberated in greater detail in the discussion section.

Chapter 5 - Discussion

The present study aimed to add to the marital relationship literature by considering the plausibility of two contrasting theoretical explanations for the directional effects of marital attitudes, frequency of time spent together as a couple, and marital satisfaction. Specifically, I tested the suppositions of cognitive dissonance theory and the investment model. This study also used longitudinal data to provide information regarding the predictive nature and temporal ordering of these effects. Moreover, two separate models were tested, one for husbands and the other for wives to observe and account for differences in gender. The purpose of this study was to test the direction of effects proposed by both models to determine whether the significant relationships support the propositions of one theoretical framework or if significant bi-directional effects partially supported hypotheses of both frameworks.

Several important conclusions emerged from these analyses. First, the findings shed light on the reciprocal nature of marital satisfaction, a variable that has typically been characterized as a dependent variable. The study also established marital attitudes and time spent together as products of marital satisfaction, challenging the general assumptions that marital attitudes and behaviors are stringently precursors to satisfaction. Specifically, this study demonstrated that marital satisfaction, marital attitudes, and time spent together can each simultaneously act as a both a predictor and an outcome variable. Research that investigates such reciprocal effects is in the minority as assumptions regarding temporal ordering of variables are typically unidirectional and guided by a single theoretical framework. The current work demonstrates the importance of testing multiple theories that may have opposing hypotheses. By testing the claims of both cognitive dissonance theory and the investment model within a single model, this study was able to establish support for both theories and suggest that opposing claims are similarly viable in explaining the relationships between marital attitudes, time spent together, and marital satisfaction. Findings of the current study are discussed in detail through their support for each of the theoretical hypotheses followed by a more comprehensive interpretation of the findings and implications for future research and intervention.

Cognitive Dissonance Theory Hypotheses

Results of the cross-lagged panel model supported several hypotheses. The first hypothesis of cognitive dissonance theory suggested that positive relationships between Time 1 marital satisfaction and Time 2 marital attitudes and Time 2 marital satisfaction to Time 3 marital attitudes should emerge. This hypothesis was partially supported among husbands. Specifically, for husbands, marital satisfaction at three to six months into the marriage significantly predicted attitudes towards the marriage 18 months later. The first hypothesis was not supported amongst wives as no significant cross-lagged paths emerged with marital attitudes as a predictor or outcome.

The second hypothesis of cognitive dissonance theory posited that there would be a positive relationship between Time 1 time spent together and Time 2 marital satisfaction and Time 2 time spent together and Time 3 marital satisfaction. This hypothesis was supported for both husbands and wives from Time 1 to Time 2 as well as Time 2 to Time 3. These results suggest that for newlyweds, the amount of time spent together as a couple significantly predicts later reports of marital satisfaction. This finding is robust across the first 4 years of marriage.

The last cognitive dissonance hypothesis suggested that a positive relationship between Time 1 time spent together and Time 2 marital attitudes and Time 2 time spent together to Time 3 marital attitudes should emerge. Again, this hypothesis was only partially supported for husbands but not for wives. Among newlywed husbands, the amount of time they reported spending with their spouse at 18 months into the marriage predicted marital attitudes three to four years into the marriage.

Investment Model Hypotheses

The first hypothesis posited by the investment model suggested that there would be a positive relationship between Time 1 marital attitudes and Time 2 marital satisfaction and Time 2 marital attitudes to Time 3 marital satisfaction. This hypothesis was not supported in either model. These non-significant paths across all three time points suggest that marital attitudes are not a significant predictor of marital satisfaction in this sample of newlyweds.

The investment model also informed the hypothesis that there would be a positive relationship between Time 1 marital satisfaction and Time 2 time spent together and Time 2 marital satisfaction to Time 3 time spent together. This hypothesis was supported for husbands

from Time 1 to Time 2 and Time 2 to Time 3. For wives, T1 marital satisfaction significantly predicted T2 time spent together, but T2 marital satisfaction to T3 time spent together was not significant. These findings suggest that, in general, marital satisfaction is a significant predictor of subsequent time spent together. This could be interpreted as, the more satisfied one is in his or her marriage, the more likely he or she will engage in more time with his or her spouse at a subsequent stage in their marriage.

The last hypothesis framed by the investment model posited that there would be a positive relationship between Time 1 marital attitudes and Time 2 time spent together and Time 2 marital attitudes to Time 3 time spent together. This hypothesis was insignificant across all three time points in both models. The results of these cross-lagged paths indicated that marital attitudes does not predict the frequency with which one will engage in activities with his or her spouse at subsequent time points.

Interpretation of Findings

All autoregressive paths were significant for both husbands and wives among all three model variables. These autoregressive pathways were all positive indicating cumulative effects of each variable onto themselves over the early years of marriage. This is consistent with findings typically found in autoregressive panel models (Little, 2013). By modeling these autoregressive effects, I was able to control for their robust impact across the three time intervals. The inclusion of these pathways in the model indicates that the significant cross-lagged paths that emerged were present even when accounting for the autoregressive effects.

The current findings further contribute to the literature by testing for longitudinal effects across three time points. This finding is important given that previous significant bidirectional effects (e.g., Amato & Rogers, 1999; Zuo, 1992) were not indicative of change or influence over time but rather, coexistence at the same period. The temporal ordering established in this study allows for clearer interpretation of the directionality of these effects. Namely, using a longitudinal panel design and testing cross-lagged paths enabled this study to test for effects above and beyond bidirectional effects found within a single time point and allows for claims of a predictive effect.

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Reciprocal Relationship between Time Spent Together and Marital Satisfaction

These results suggest that spending more time with your spouse leads to an increase in marital satisfaction, consistent with cognitive dissonance theory. This finding held true for both husbands and wives across the early years of marriage, from Time 1 to Time 2 as well as Time 2 to Time 3. Thus, in accordance with a cognitive dissonance perspective, these results suggest that individuals who engage in more joint activities with their spouses will subsequently indicate feeling more satisfied in their marital relationship to align their evaluation with their behavioral experiences.

In support of the propositions of the investment model, our findings demonstrate that both husbands and wives who indicated feeling satisfied in their marriage subsequently invested more in their marriage by spending more time with their spouses. This finding was supported across all three time points, with the exception of wives from Time 2 to Time 3. This suggests that the predictive path from satisfaction to time spent together is generally consistent over the early years of marriage and that couples who are happy are likely to find ways to engage in more time with one another through joint activities. This conclusion replicates the claims made by Zuo (1992) who suggested that the "amount of time a couple shares in joint activities is… a result of the extent to which individuals are happy with their marriage," (p. 877). What the current model adds to these findings, however, is the presence of a longitudinal reciprocal effect.

Namely, the results lend support to the mutual nature of the relationship between time spent together and marital satisfaction. Specifically, the findings supported the second hypothesis of both cognitive dissonance theory and the investment model; signifying that early marital satisfaction predicts time spent together 18 months later and that frequency of time spent together early in the marriage also predicts subsequent satisfaction in the marital relationship. For husbands, this reciprocal effect was robust across all waves. This suggests that the happier one is, the more likely one will engage in more activities with his or her spouse and also, that spending more time in joint activities with one's spouse also leads to feeling more satisfied in the marriage. This is consistent with White's (1988) and Zuo's (1992) findings of bidirectional effects of marital satisfaction and time spent together but adds to their findings by providing the temporal ordering of these reciprocal effects.

There are several possible explanations for the emergence of reciprocal effects between time spent together and marital satisfaction. It may be that there are different mechanisms via

which these effects emerge. Also, it could be that individuals differ in how these factors influence one another such that certain groups may follow trends of one directional effect while others may align better with the other directional effect. The finding also points to the need to consider other possible explanations. For instance, Lavner and Bradbury (2010) found that the level of satisfaction established early in the marriage tends to be the strongest indicator of satisfaction throughout the marriage. Their findings indicate that it may be important to study early dating relationships that become committed and eventually lead to marriage. By addressing the connection between time spent together and marital satisfaction early in the relationship, researchers may be able to determine the temporal ordering or reciprocal nature of behavior patterns and attitudes as they develop. These behavioral patterns and attitudes may already be established at the time of marriage and, therefore, may appear reciprocal. It may be that spending time together early in a relationship predicts marital satisfaction (or vice versa), but subsequently leads to a cascade effect of mutual reinforcement over time.

Effects of Marital Attitudes

No reciprocal effects were found between marital attitudes and time spent together or between marital satisfaction and marital attitudes. Results of the cross-lagged panel analysis, however, indicated that husbands' marital satisfaction three to six months after marrying predicted marital attitudes two years into the marriage. Moreover, husbands' reported amount of time spent with their spouses two years into marriage predicted their marital attitudes another two years later. These data suggest that, for husbands, marital attitudes are an outcome but not a predictor of satisfaction and time spent together. It may be that, for husbands, feeling more satisfied in his marriage or spending more time with his spouse leads to his marriage becoming a more central aspect of his identity. It is then probable that the centrality of marriage in one's identity promotes favorability towards the institution of marriage, which is suggested by reports of more traditional marital attitudes. Similarly, engaging in joint activities such as having "a stimulating exchange of ideas" with one's spouse may encourage husbands to reflect positively on marriages (i.e., supporting the link proposing that more time spent together → stronger marital attitudes).These hypothetical considerations are based on the results found in the present study. The sample in this study, however, is widely homogenous in its demographics, thus such

findings should be empirically tested with other samples to determine if similar results are replicated in support of these posited ideas.

These two significant pathways were both in favor of directional paths proposed by cognitive dissonance theory. Contrary to our findings, Amato and Rogers (1999) did not find any significant effects of time spent together to attitudes towards divorce but found a small effect from attitudes to time spent together. Again, the present study's significant inverse finding may suggest that such a test of reciprocal effects needs to be replicated in order to determine the reliability of either of these findings. Additionally, because no cross-lagged paths were found for wives with the exception of those discussed previously between time spent together and marital satisfaction, it is possible that there is a variable not modeled in this study that can better explain the relationship between attitudes and time spent together and attitudes and marital satisfaction among women. Another possible explanation is that wives' marital attitudes were strongly predicted by the covariates included in the model. Specifically, religious attendance and faith importance are very dominant predictors of marital attitudes at both Time 1 and Time 2. Given that the construct of marital attitudes is greatly aligned with religious observations of marriage, it is not surprising that the variance in attitudes was largely accounted for by religiously-focused covariates.

Though it seems logical that marital attitudes would be a significant construct to consider in a study of marital relationships, the findings of this study indicated that it is a largely insignificant predictor and outcome variable at least as operationalized in this study. In observing these non-significant effects, I reflected on the measurement of the construct. Specifically, the present study's measurement of marital attitudes suggests more traditional (e.g., "One of the main reasons to get married is to have children") and religious (e.g., "Marriage is an unbreakable covenant with God, not just a contract recognized by the law") outlooks on marriage. This definition of marital attitudes may have resulted in non-significant effects with time spent together and marital satisfaction because individuals varying on the spectrum of marital attitudes may not differ with respect to the amount of time spent with a spouse or their overall level of marital satisfaction. A one-way analysis of variance follow up was conducted to determine if this statement was supported by the data. As expected, the results demonstrated no significant difference for wives at Time 1 with less or more traditional marital attitudes on their reported time spent together, $F(1, 79) = .126$, $p = .724$. Similar insignificant differences were found on

marital satisfaction, $F(1, 79) = .453$, $p = .503$ for wives at Time 1. These insignificant differences were robust across all three time points for men and women. Taken together, these findings indicated that those who disagreed with statements on the marital attitudes scale are just as likely to indicate spending an equal amount of time with their spouse and being equally satisfied in their marriage as their counterparts who indicated strong agreement to these more traditional attitudes toward marriage.

Results of Tests for Mediation

Lastly, the results of the test of indirect effects were insignificant in this model. This reveals that although the proposed model was generally able to explain the mutual relationship between time spent together and marital satisfaction, the indirect links between these variables across the three time points did not significantly explain what factors may mediate these relationships. By using the bootstrapping procedure, recommended to be the most powerful and reasonable method for detecting indirect effects (Preacher & Hayes, 2008), if significant cross-lagged mediations were present in this model, they would have likely been established. The non-significant findings, however, were not surprising given the high amount of variance accounted for by the autoregressive and covariate paths in the model. Specifically, Preacher and Hayes (2008) suggested that indirect effects may be diminished in models where mediators strongly correlated with other variables in the model such that the collinearity of such variables may lead to findings of insignificant indirect effects even if the mediator(s) may actually be significant. Thus, it may be that the indirect effects were not significant because the measurement of the construct and covariates in the current model had strong relationships with one another.

Limitations & Future Research Directions

Several limitations of the present findings should be considered. First, use of manifest variables in this model presumes that the aggregate of each construct is comprised of equally weighted items to define the construct of interest. This model was tested under the assumption that these items measure only the true score of the construct without considering the presence of measurement error. The findings, however, provide ample information regarding the relationships between the constructs over time, but future research could benefit from use of

latent constructs to effectively capture the variance of each variable while accounting for measurement error so that it more accurately represents true scores of the constructs of interest.

Second, data were analyzed separately for husbands and wives in this study. Although the data set provided access to dyadic data, the partner effects between husbands' and wives' attitudes, time spent together, and marital satisfaction are beyond the scope of this study. The focus of this study was to empirically test the theoretical relationships between marital attitudes, time spent together, and marital satisfaction rather than understand the interactive nature of the constructs within a marital relationship. The findings of this study, however, may serve as a foundation for future dyadic research. By understanding the significance of the theoretical pathways suggested in these findings, future researchers may be able to test the extent to which husbands' behaviors, attitudes, or perceptions of marital satisfaction may influence similar constructs for wives' as well as the inverse via an actor-partner interdependence model.

Moreover, by testing constrained actor-partner paths, researchers may also uncover which effects are stronger within couple relationships. For instance, it may be that both husbands' and wives' marital satisfaction predicts the amount of time the couple spends engaging in joint activities, but testing for differences in these paths may uncover that one partner's marital satisfaction is more influential in determining the amount of time spent together. Such hypotheses could be further developed and tested in future research.

Several limitations regarding the method of sampling and data collection should also be noted. The data in this study were obtained from participants via marriage licenses in the state of Louisiana. This sampling method restricts the applicability of these findings to heterosexual couples married in this state and may not generalize to those from other geographic locations or couples of same-sex orientation. Also, this sample only included couples that remained married throughout the duration of data collection. Future studies may benefit from investigating how similar constructs may vary for those that separate or divorce. Perhaps such findings may reveal if related variables are significant influences on the likelihood of divorce. Furthermore, data were gathered from participants via self-report survey instruments; therefore, the effects found in the model may be somewhat due to shared method variance. It would, therefore, be beneficial for future researchers to implement several alternative measurement techniques (e.g., reports from others and professional observational coding) to capture the unique effects of each construct.

Thus far, I have discussed methodological limitations and suggestions for alternative analytic strategies. The following section provides a preliminary consideration of the theoretical and empirical implications of these findings. First, the results of this study indicate that the link between marital attitudes and marital satisfaction was, for the most part, insignificant. Theoretically, the relationship between cognitions about marriage and the happiness within a marriage is strong. The present construct, however, does not measure marital attitudes in a way that encompasses the multi-faceted nature of marital meaning. Although the present measurement of marital attitudes contains items similar to those of other marital attitude measures, the psychometric properties of this study's measurement have not been normed or empirically tested outside of the current sample. Future research would benefit from measuring marital attitudes by including the different marital meaning dimensions delineated by Hall (2006). Specifically, the present measurement addresses marital attitudes from a traditional and religious perspective which confines the interpretability of the findings to those with a religiously-centered perspective on marriage but the meaning of marriage is unique for individuals and influences belief and attitudes regarding marriage. Hall (2006) suggests that, in order to properly use marital attitude constructs to explain marital behaviors, the meaning of marriage should be comprehensively measured by assessing the dimensions of meaning (i.e., status, self-fulfillment, mutuality, romance, and roles).The extent to which one regards each dimension of marriage to be central to meaning of marriage will differentially influence how one behaves in the marriage and how he or she evaluates satisfaction within the marriage. By using a more encompassing marital attitude measure, research would be able to accurately capture the variance in the complex meaning making around marriage.

In addition to a more multidimensional measure of marital attitudes, future research may wish to use a behavioral measure that addresses quality of the marital behavior rather than the frequency. The present study's use of time spent together suggests that a couple that frequently engages in joint activities as a couple is likely to be more satisfied in their marriage. This study does not, however, indicate either partner's evaluation of the quality of the time they spend together. By using empirically validated measures that address the quality of marital behaviors, researchers may better explain its links with attitudes and evaluations of marriage. For example, future research may seek to measure effective communication, conflict resolution, and negative interaction to further understand if constructs such as marital attitudes or marital satisfaction can

influence or be influenced by the degree to which individuals engage in these positive and negative behaviors. Such research would also further clinical interventions by providing empirical evidence for targeting specific behaviors that have been found to be related to marital outcomes.

Moreover, as discussed earlier, the sample in this study was comprised of newlyweds. It is often assumed by researchers that when we study newlyweds, we are capturing the effects of our variables of interest at the beginning of the couple relationship. However, all newlyweds vary in the length of their dating relationship prior to getting married. For many newly married couples who have had long dating histories, capturing their levels of marital attitudes, time spent together, and marital satisfaction in their first year of marriage does not reflect much more than a snapshot of a midpoint in their relationship. It would, therefore, be beneficial for researchers to study couples prior to marriage, possibly when the formation of the dating relationship is beginning. Of course, such a sample is harder to obtain as it is unclear whether such relationships will continue into marriage or if they will terminate precipitately. Researchers may make gains in this area by studying samples of dating couples that indicate intentions to marry. By analyzing similar marital constructs in such a sample, we may be more accurately capturing the initial levels at the commencement of couple relationships.

Finally, although the indirect effects in this study were not significant, future research should continue to test for mediation in similar studies. The primary intention of the present study was to determine the reciprocal effects between these constructs while controlling for the effects of factors such as religiosity and type of marriage rather than to determine the mechanisms of indirect effects. Thus, for future research specifically seeking to define the indirect effects between similar constructs, it would be advantageous to select mediators that are not highly related to one another (Preacher & Hayes, 2008). In doing so, future researchers may be better able to explain the links between these martial attitudes, time spent together, and marital satisfaction, by determining the unique indirect effects via which these relationships occur. Such findings would provide greater understanding of the role of each of these constructs and their relationships with one another.

Implications for Interventions

The results of this study provide several suggestions for clinical and relationship education intervention with newlywed couples. First, the findings demonstrate that marital attitudes, time spent together as a couple, and marital satisfaction have unique causal effects on each other over time. In other words, time spent together does not only predict later marital satisfaction but earlier marital satisfaction can also predict subsequent frequency of time spent together. This may inform clinicians and educators of particular areas in which to focus their intervention and instruction. For example, the evidence shows that the traditional perspective of psychotherapy of behavioral modifications leading to positive outcomes (e.g., more time spent together should result in more satisfaction in the marriage) may now be challenged by the findings that suggest that, for some individuals, satisfaction may be a more salient predictor of attitudes and behavior than the inverse. This may suggest that working on enhancing the quality of the relationship will subsequently influence the couple's likelihood of engaging in more time with one another. This study particularly supports the notion that, for newlywed husbands, how satisfied they are in their marriage is highly tied to how much time they spend with their spouses. This finding may inform educators and clinicians of the importance of promoting both ideals in early marital relationships.

Conclusion

In conclusion, this study established several significant findings regarding the longitudinal relationships between marital attitudes, time spent together, and marital satisfaction. Specifically, the findings demonstrated that for both wives and husbands in the early years of marriage, time spent together consistently predicted later reports of marital satisfaction. This finding supports the claims of cognitive dissonance theory, which suggested that one will adapt his or her evaluation of a situation to be consistent with his or her behaviors (Harmon-Jones & Harmon-Jones, 2002). Moreover, results of this study also supported reciprocal effects between time spent together and marital satisfaction among husbands such that marital satisfaction also significantly predicted greater reports of engagement in joint activities as a couple. This signified that both cognitive dissonance theory *and* the investment model are appropriate theoretical frameworks to understanding the link between the amount of time husbands spend engaging in joint activities with their spouses and their satisfaction in their marriages. Several interpretations

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and suggestions for future research were discussed in light of these findings. Finally, this study chiefly supported findings of previous research on the relationship between these constructs but also strengthens the literature by accounting for the temporal ordering of these relationships. These results suggest that marital researchers should consider testing opposing theoretical propositions to determine which may better explain the relationships between constructs of interest. The results also point to the need to test the construct of marital attitudes in such a way that encompasses the complexity of marital meaning. Furthermore, research should consider the interdependent effects within couple relationships and test for mediational effects. Finally, interventions should target aspects of the couple relationship (e.g., enhancing marital satisfaction or encouraging joint activities) that are most salient for each partner at particular stages of the marriage as they are likely to impact later marital outcomes.

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Appendix A - Tables

Table 1 Descriptive Statistics for Variables of Interest

Variables	Range	Husbands			Wives		
		M or %	*SD*	α	*M* or %	*SD*	α
T1 Marital Satisfaction	1-5	4.24	.65	.90	4.24	.68	.90
T2 Marital Satisfaction	1-5	4.10	.68	.89	4.03	.77	.91
T3 Marital Satisfaction	1-5	4.04	.70	.91	3.88	.83	.91
T1 Time as a Couple	1-6	4.96	.58	.83	4.90	.62	.82
T2 Time as a Couple	1-6	4.75	.59	.82	4.68	.65	.81
T3 Time as a Couple	1-6	4.62	.61	.84	4.52	.71	.86
T1 Marital Attitudes	1-5	3.17	.70	.76	3.00	.64	.76
T2 Marital Attitudes	1-5	3.30	.63	.74	3.08	.59	.73
T3 Marital Attitudes	1-5	3.37	.69	.77	3.07	.66	.75
Remarried		28.8%			32.7%		
Age	18-90	30.61	9.80		28.49	8.83	
Years of Education	7-22	14.01	2.44		14.13	2.22	
T1 Rel. Attendance	0-7	4.40	2.07		4.57	2.00	
T2 Rel. Attendance	0-7	4.48	2.08		4.67	1.98	
T2 Rel. Attendance	0-7	4.43	2.09		4.64	2.01	
T1 Presence of children		18.9%			20.5%		
T2 Presence of children		24.9%			28.3%		
T3 Presence of children		33.4%			34.7%		
T1 Income*	1-13	5.71	2.19		4.36	1.98	
T2 Income*	1-13	6.17	2.33		4.56	2.11	
T3 Income*	1-13	6.77	2.52		4.57	2.39	
T1 Faith Importance	1-5	4.11	1.06		4.38	.87	
T2 Faith Importance	1-5	4.13	1.03		4.41	.83	
T3 Faith importance	1-5	4.05	1.06		4.36	.86	

Notes. *Income: 1= none to 13 = $100,000 or more.

Table 2 Correlations among Observed and Control Variables (*N* = 610 men, 610 women)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. T1 MS	__	.54**	-00	.49**	.33**	.16**	.51**	.34**	.08	.07	.13**	-.01	-.05	.05	-.03	.05	.03	.05	-.00	.09	.05	.06	-.07	.09	.09*
2. T1 TST	.61**	__	-.04	.34**	.56**	.03	.34**	.46**	.01	.04	.08	.04	.01	-.06	-.08	.10*	-.03	-.10	-.03	.10	.06	-.09	-.05	.07	.01
3. T1 MA	.03	-.00	__	-.01	-.05	.61**	-.05	-.08	.60**	-.16**	-.14**	-.12**	.27**	.35**	-.04	-.08	.37**	.34**	-.01	-.03	.05	.34**	.05	-.04	.10*
4. T2 MS	.55**	.38**	.02	__	.59**	.05	.63**	.44**	.07	-.02	.06	-.00	-.01	.02	-.04	.05	.02	-.00	-.03	.04	.00	.02	-.01	-.01	.02
5. T2 TST	.46**	.60**	-.04	.67**	__	.02	.42**	.58**	.07	-.03	.06	.11*	-.04	-.08	-.06	.08	-.05	-.07	-.03	.08	-.09	-.09	-.02	.06	.00
6. T2 MA	.08	-.02	.64**	.10*	.01	__	.02	-.02	.61**	-.17**	-.16**	.01	.16*	.26**	-.08	-.06	.29**	.26**	-.03	.01	.30**	.36**	.02	-.00	.03
7. T3 MS	.50**	.38**	.10*	.62**	.50**	.10*	__	.69**	.09	.08	.17**	.01	.02	.09	-.04	.10	.04	.07	-.08	.11	.03	.09	-.09	.02	.05
8. T3 TST	.43**	.54**	-.01	.49**	.72**	-.02	.69**	__	.10*	.08	.20**	.08	-.09	-.02	-.07	.13*	-.00	.03	-.04	.17**	.03	.02	-.06	.09	-.02
9. T3 MA	.06	-.01	.64**	.10*	.01	.72**	.14**	.01	__	-.02	-.06	-.06	.10	.36**	-.01	-.07	.36**	.37**	.05	.04	-.05	.42**	.03	-.02	.37**
Controls																									
10. Remarried	.04	.09*	-.14*	.04	.07	-.11*	-.04	.05	-.10*	__	.63**	-.10*	-.01	-.06	.12**	.27**	-.03	-.01	.02	.20**	.01	-.07	-.14**	.13*	-.05
11. Age	.02	.07	-.12*	.03	.02	-.11*	.00	.04	-.10*	.64**	__	.10*	-.13*	-.07	-10*	.38**	-.05	-.01	-.02	.30**	-.01	-.09	-.13*	.18**	-.01
12. Education	.04	-.02	-.06	-.02	.02	-.05	-.06	-.04	.06	-.20**	.01	__	-.04	.07	-.10*	.28**	-.06	.08	-.13*	.29**	.11*	.09	.04	.37**	.17**
13. Marriage Type	-.01	-.01	.23**	-.03	-.12*	.14*	-.03	-.01	.12*	-.05	-.05	.02	__	.28**	-.17**	-.04	.29**	.21**	-.21**	.02	.18**	.14*	-.09	-.01	.13*
14. T1 Rel. Attendance	.06	.00	.37**	.07	-.03	.35**	-.00	-.08	.37**	-.08	-.01	.11*	.28**	__	-.11*	-.11*	.68**	.85**	.00	-.06	.11*	.79**	.09	-.12*	.12**
15. T1 Children	-.05	-.06	-.07	-.07	-.09*	-.07	-.12**	-.13**	-.14**	.16**	.10*	-.16**	-.09	-.11**	__	.01	-.08	-.01	.44**	.02	-.11*	-.08	.10	.01	-.07
16. T1 Income	.048	.011	-.13**	-.08	-.02	-.19**	.02	.02	-.13**	.15**	.34*	.29**	-.10	-.07	.04	__	-.12**	-.06	-.01	.79**	-.05	-.05	-.03	.68**	-.02
17. T1 Faith Importance	-.010	.003	.10*	-.05	-.01	.13**	-.05	-.03	.10*	-.10*	-.04	.11**	.22**	.16**	.01	.01	__	.66**	-.03	-.08	.59**	.63**	.04	-.14*	.70**
18. T2 Rel. Attendance	.087	-.043	.35**	.10*	-.05	.36**	.04	-.05	.33**	-.03	-.01	.16**	.25**	.86**	-.00	-.01	.17**	__	-.01	-.05	.72**	.86**	.09	-.12*	.13**
19. T2 Children	.058	.022	-.02	-.05	-.08	-.02	-.04	-.08	.33**	.00	-.04	-.10*	-.12	.00	.46**	.02	-.04	.04	__	.04	-.03	-.01	.42**	.02	-.03
20. T2 Income	.032	.042	-.14**	-.04	-.01	-.16**	.00	-.01	-.16**	.09	.31**	.39**	-.03	-.05	-.01	.65**	.07	.01	-.10*	__	-.08	-.05	-.04	.79**	.07
21. T2 Faith Importance	.060	.008	-.00	.11*	.02	.33**	.02	-.02	.04	-.09*	-.08	.10*	.12*	.09*	-.12**	-.04	.31**	.67**	-.00	-.05	__	.03	-.04	-.01	.64**
22. T3 Rel. Attendance	.018	-.042	.31**	.08	-.05	.31**	.03	-.04	.34**	-.07	-.03	.08	.21**	.78**	-.09*	-.07	.16**	.83**	.01	-.02	.05	__	.07	-.10	.73**
23. T3 Children	-.018	.004	.03	-.01	-.03	.08	-.04	-.07	.04	-.11*	-.13**	.04	-.03	.08	.07	.03	-.05	.13**	.37**	.02	.04	.10*	__	.00	.02
24. T3 Income	-.001	-.003	-.15**	-.08	-.03	-.15**	-.01	-.00	-.19**	.06	.20**	.33**	.06	-.10*	.02	.50**	.05	-.07	-.14**	.71**	-.09	-.09*	-.03	__	-.12*
25. T3 Faith importance	.062	-.023	.00	.00	-.02	.02	.07	-.01	.31**	-.06	-.03	.15**	.01	.11*	-.07	.07	.43**	.15**	-.05	.09	.51**	.62**	.07	-.10*	__

Notes. * *p* < .05. ** *p* < .01. *** *p* < .001. (two-tailed test). Wives=below the diagonal, Husbands=above the diagonal; MS=marital satisfaction, TST=time spent together, MA=marital attitudes.

Table 3 Bootstrap Analyses for Indirect Effects between T1 and T3 Observed Variables (Standardized Solution; *N* =610 men, 610 women)

| Predictor	Mediator	Outcome	β	CI	*t*-value
Husbands					
T1 marital satisfaction→	T2 time spent together→	T3 marital satisfaction	.010	-.007, .027	1.192
T1 time spent together→	T2 marital satisfaction→	T3 time spent together	.024	-.002, .049	1.809†
T1 marital satisfaction→	T2 time spent together→	T3 marital attitudes	.009	-.005, .023	1.271
Wives					
T1 marital satisfaction→	T2 time spent together→	T3 marital satisfaction	.024	-.001, .049	1.897†

Notes. †*p* < .10. * *p* < .05. **p* < .01. *** *p* < .001 (two-tailed). Indirect paths tested with 2,000 bootstraps. CI = 95% confidence interval.

Appendix B - Figures

Figure 1 Theoretical Cross Lagged Panel Analysis for Marital Attitudes, Time Spent Together, and Marital Satisfaction.
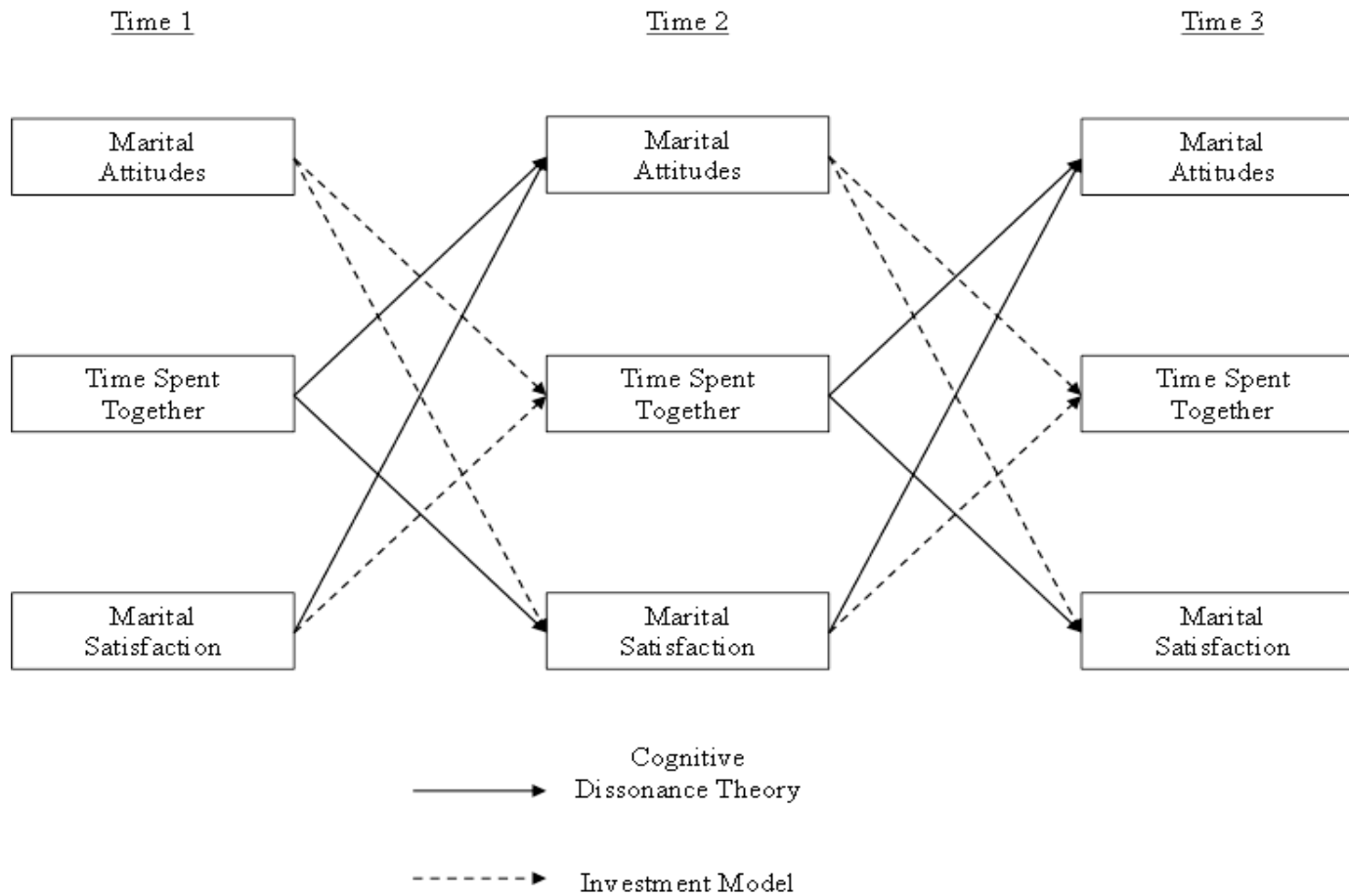
Figure 2 Husbands' Autoregressive and Cross-Lagged Model of Marital Attitudes, Time Spent Together, and Marital Satisfaction (*N* = 610)

Time 1   Time 2   Time 3

.34***

Marital Attitudes   .59***   Marital Attitudes   .35***   Marital Attitudes

.08 †

.15**

.16***

Time Spent Together   .52***   Time Spent Together   .43***   Time Spent Together

.12 †

.15**   .11*   .09 †   .16**

.54***   .53***

Marital Satisfaction   .42***   Marital Satisfaction   .48***   Marital Satisfaction

.59***

.22***
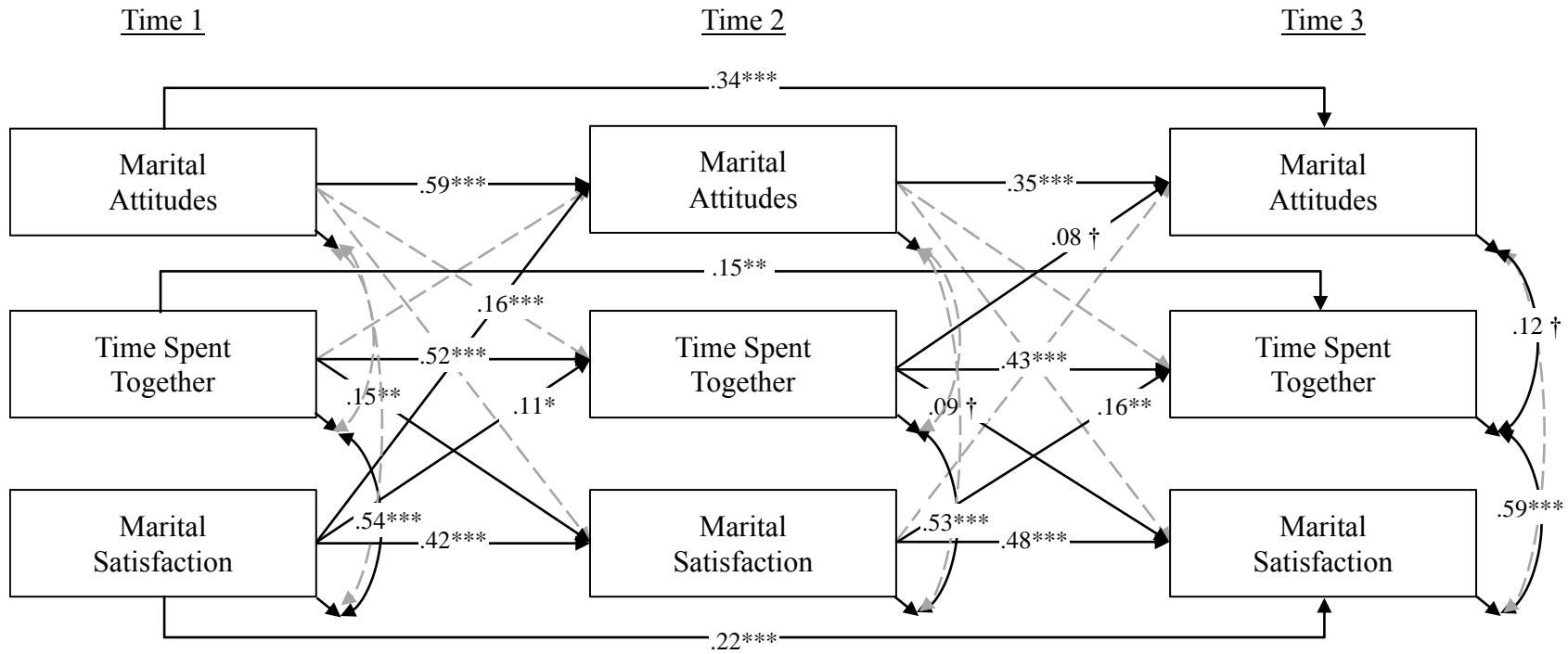
Note: Standardized estimates shown. Residual paths for marital attitudes, time spent together, and marital satisfaction were correlated at all three respective time points. T1 religious attendance, T1 presence of children, T1 faith importance, number of marriages, age, education, type of marriage, T2 faith importance, and T3 religious attendance were added as covariates, but are not included in the figure for clarity. Model fit indices: χ^2 (71) = 82.234, *p* = .170; RMSEA = .018 (C.I. = .000, .032); CFI = .993; TLI = .989; SRMR = .032. † *p* < .10. * *p* < .05. ** *p* < .01. *** *p* < .001 (two-tailed).

Figure 3 Wives' Autoregressive and Cross-Lagged Model of Marital Attitudes, Time Spent Together, and Marital Satisfaction (*N* = 610)
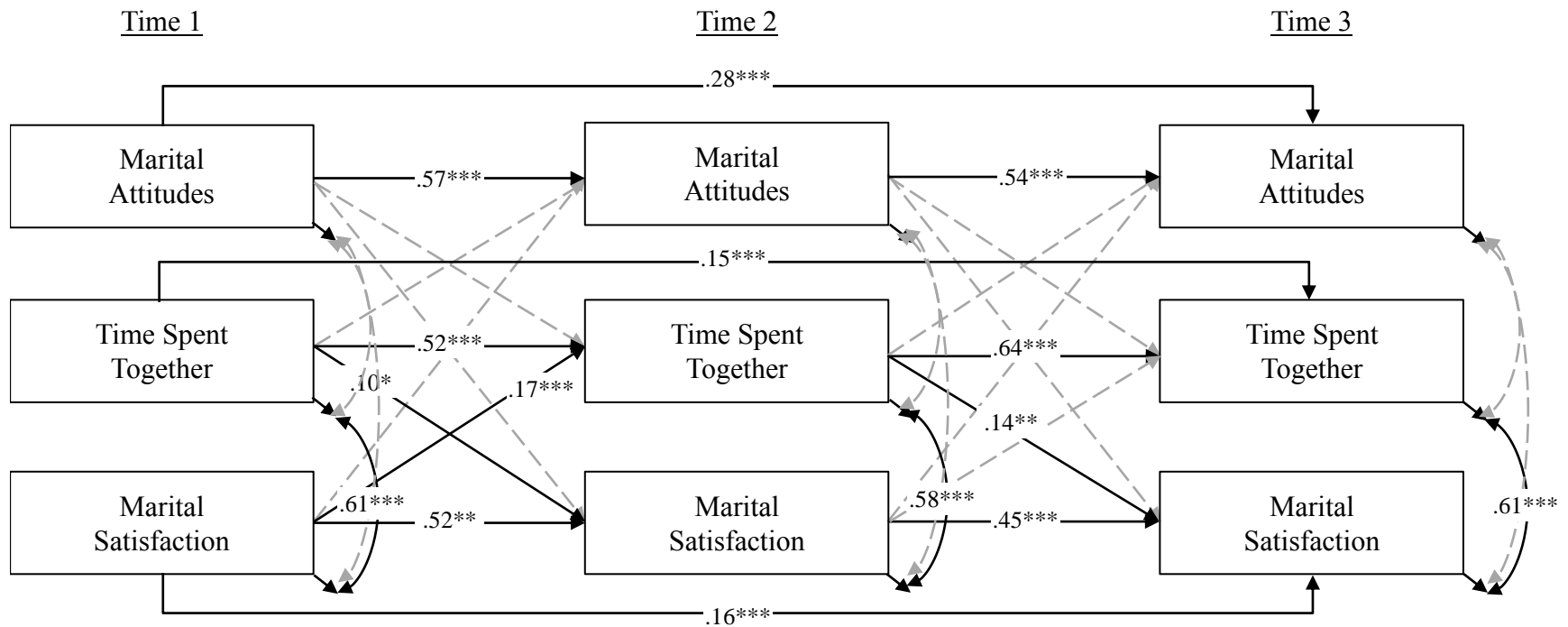
Note: Standardized estimates shown. Residual paths for marital attitudes, time spent together, and marital satisfaction were correlated at all three respective time points. T1 religious attendance, T1 presence of children, T1 faith importance, number of marriages, education, type of marriage, T2 religious attendance, T2 presence of children, T2 income, T2 faith importance, and T3 presence of children were added as covariates, but are not included in the figure for clarity. Model fit indices χ^2 (78) = 87.715, *p* = .212; RMSEA = .015(C.I. = .000, .028); CFI = .996; TLI = .994; SRMR = .024. * *p* < .05. ** *p* < .01. *** *p* < .001 (two-tailed).

Appendix C - Measures

Measure 1 Marital Attitudes

H1. Now we have some questions about marriage and divorce. These questions do not refer specifically to your current marriage or any previous marriage, but about marriage and divorce in general. Please indicate whether you Strongly agree, Agree, Neither agree nor disagree, Disagree, or Strongly disagree with each one.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
No matter how successful he is, a man is not truly complete as a person unless he is married	5	4	3	2	1
No matter how successful she is, a woman is not truly complete as a person unless she is married	5	4	3	2	1
One of the main reasons to get married is to have children	5	4	3	2	1
Being married is one of the most important things in life	5	4	3	2	1
If a couple has children, they should stay married, no matter what	5	4	3	2	1
Society would be better off if divorces were harder to get	5	4	3	2	1
Long waiting periods to get a divorce give people time to get over their anger and work out their problems	5	4	3	2	1
Marriage is an unbreakable covenant with God, not just a contract recognized by the law	5	4	3	2	1

Measure 2 Time Spent Together

J2. How often do you and your partner do each of the following things? (Leave a question blank if it does not apply to you and your partner.)

	Every Day	Several Times a Week	Weekly	Sometimes	Rarely	Never
Kiss	6	5	4	3	2	1
Engage in outside interests together	6	5	4	3	2	1
Have a meal together at home	6	5	4	3	2	1
Have a stimulating exchange of ideas	6	5	4	3	2	1
Laugh together at something	6	5	4	3	2	1
Watch TV together	6	5	4	3	2	1
Calmly discuss an issue	6	5	4	3	2	1
Work together on a project	6	5	4	3	2	1
Have sexual relations	6	5	4	3	2	1
Just spend time alone with each other	6	5	4	3	2	1

Measure 3 Marital Satisfaction

J1. In every marriage, there are some things that are very good and other things that could use some improvement. Right now, how satisfied would you say you are with each of the following aspects of your marriage?

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
The physical intimacy you experience	1	2	3	4	5
The love you experience	1	2	3	4	5
How conflicts are resolved	1	2	3	4	5
The degree of fairness in the marriage	1	2	3	4	5
Quality of communication	1	2	3	4	5
The emotional intimacy you experience	1	2	3	4	5
Your overall relationship with your partner	1	2	3	4	5