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HOUSING FACTORS ASSOCIATED WITH MARITAL SATISFACTION

by

Samantha J. Nelson

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family, Consumer, and Human Development

Approved:

Lucy M. Delgadillo, Ph.D. Major Professor	Jeffrey P. Dew, Ph.D. Committee Member
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UTAH STATE UNIVERSITY
Logan, Utah

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ABSTRACT

Housing Factors Associated with Marital Satisfaction

by

Samantha J. Nelson, Master of Science

Utah State University, 2011

Major Professor: Dr. Lucy M. Delgadillo
Department: Family, Consumer, and Human Development

The purpose of this study was to assess the direction and magnitude of the relationship between levels of marital satisfaction and two main housing variables—the housing burden ratio and the amount of home equity. The influence that these variables have on levels of marital satisfaction was mediated and moderated by how satisfied couples were with their homes and their finances, as well as their perceived experience of economic pressure. The results ultimately provide insights that can improve both couple well-being and financial/housing situations by pinpointing factors that account for the variance in marital satisfaction.

This study used existing data from the National Survey of Families and Households (NSFH). Although NSFH was collected in three longitudinal waves, this study used the second wave from 1992 as it contained the most complete information pertaining to research hypotheses. Approximately 5,000 participants were included.

Descriptive statistics and multiple regression analyses were used. One moderator and three mediating models were tested.

Most of the sample (82%) owned homes. Approximately one third of those homeowners had entirely paid off their mortgage balances. Participants were mostly White, and were 46 years old on average. Only married participants were included in this study. Median annual income per household was $47,400 and the average housing cost burden was .139.

Results indicated that the relationship between housing burden and marital satisfaction was partially mediated by economic pressure. A full mediation model existed between percent equity, economic pressure, and marital satisfaction, but no other equity variables. Results came close (p = .053) to indicating a full moderation model between housing burden, housing satisfaction, and marital satisfaction. Another partial mediation model was found between percent equity, financial satisfaction, and marital satisfaction. And finally, homeownership status negatively predicted marital satisfaction.

(72 pages)

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CHAPTER I

INTRODUCTION

Within the last two decades, mortgage debt has skyrocketed. From 1990 to 2008, a span of 18 years, the total outstanding mortgage debt in the U.S. rose from 3.8 trillion dollars to 14.64 trillion dollars (U.S. Census Bureau, 2010a). In that same period, delinquency rates rose from 4.7% of all loans originated to 7%, while the total percentage of loans in foreclosure procedings increased from .9% to 3.3% (U.S. Census Bureau, 2010b). Magnified by the 2008 recession, millions of Americans have lost their jobs, their health insurance, their pension plans, their financial security, and in the midst of such a rocky economy, their homes. Nevertheless, homeownership is an American tradition that accounts for an enormous proportion of consumer wealth—in fact, it is one of the largest sources of wealth for most Americans, with primary residences accounting for 31.8% of total family assets in 2007 (Bucks, Kennickell, Mach, & Moore, 2009). With over two-thirds of the population (67.3%) paying home mortgages, it is important to investigate how factors associated with such a widespread state will affect individuals and their relationships (U.S. Census Bureau, 2009). By addressing housing factors, more understanding can also be gained as to how truly "owning" a home (having 100% equity) versus facing the burden of a mortgage can affect marital relationships.

For many couples who buy homes with small down payments, purchasing a home often means taking out a large mortgage loan—an enormous undertaking of debt. In previous studies (Andersen, 2001; Conger, Rueter, & Elder Jr., 1999; Dew, 2008), high levels of general debt have frequently been correlated with marital stress—and mortgage debt may be no exception. If such is the case, the stresses and responsibilities of

homeownership may relate to marital satisfaction more negatively than the alternative of renting. However, the portion of a home that a couple owns outright (the amount of equity) may counterbalance such feelings of overwhelming debt, as the home slowly changes from a liability into an asset. Dew (2008) has explained that different debt types may relate to marital satisfaction in different ways. He suggests that consumer debt change may be the most obvious predictor of marital satisfaction changes, as it is frequently associated with higher interest rates and severe consequences. Mortgage debt, too, carries serious consequences of defaulted payments, and due to the long length of most home loans, the amount of total interest paid is substantial, even with a relatively low interest rate.

Couples may respond to the responsibilities of those homeownership complexities in different ways, which can influence their marital satisfaction. For example, a household spending too large a portion of their income on housing costs may find that the money left after the mortgage payment for non-shelter related expenses is insufficient. They may sacrifice other equally important family goals, such as adequate health insurance or leisure-related activities, in order to maintain their home. Spouses may not perceive the costs of such a sacrifice to be worth the benefits of maintaining the home and decreased marital satisfaction may follow. However, in other cases, given different family goals, expectations, and perceptions, the benefits of homeownership may outweigh the costs of such a sacrifice.

While there have been relatively few studies devoted to the effects of assets and debt on marital quality, there have been even fewer that examine the impact of mortgage debt and equity specifically. Increases in consumer debt have been shown to negatively

impact marital relationships; however, the influence of mortgage debt may affect couples differently. Unlike consumer debt, a mortgage represents far more than merely an enormous liability. A home is a unique purchase, as it represents both debt and a growing source of equity. There may also be differing perceptions as to a home's meaning and symbolism.

At one end of a spectrum, owning a home can be a fulfillment of the American Dream—a realization of lofty goals and hard work. More than just a shelter from the elements, a home may be a symbol of stability and status in a consumption-driven society. Homeowners may consider their monthly mortgage payments to be an investment in a valuable asset that is less likely to significantly depreciate—far better than spending hard-earned money on rental payments. Owners may have a sense of pride in their neighborhoods and have access to services offered in that community. One might expect that such a perspective would have enhancing and positive effects on a marital relationship for homeowners.

At the opposite end of the spectrum, however, a home may instead represent a substantial financial stress—perhaps an unaffordable burden that strains a marriage to its breaking point. A burdensome mortgage payment may sap a large amount of income from a household's budget; home repairs and maintenance might deplete savings; and the mortgage itself, depending on the local housing market conditions, may be an enormous liability. In such conditions, other non-shelter needs may also be compromised.

The United States Department of Housing and Urban Development (HUD) has set a threshold for what is considered an affordable housing payment. Affordability is a measure of the financial ability of a family to sustain mortgage payments that are at or

less than 30% of their gross income. If more than 30% of a couple's (or family's) gross income is spent on housing costs (including utilities) that family is considered cost burdened. If more than 50% of income is spent on housing, it is considered a severe cost burden. It would be expected that couples facing cost burdens might be more likely to experience decreased marital satisfaction. It may also be expected that increases in levels of equity are associated with increased marital satisfaction—however, the relationship may be affected by the dual, debt-asset characteristics a mortgage possesses.

The purpose of this study is to assess the direction and magnitude of the relationship between levels of marital satisfaction and two main housing variables—the housing burden ratio and the amount of home equity. The influence that these variables have on levels of marital satisfaction may be mediated or moderated by how satisfied couples are with their homes and their finances, as well as their perceived experience of economic pressure. The results may ultimately provide insights that can improve both couple well-being and financial/housing situations by pinpointing factors that account for the variance in marital satisfaction.

Results of this study may be of value to family relations professionals in general, as these professionals seek to help couples experiencing marital crises. Housing counselors in particular can use the findings to offer more complete suggestions and counsel to clients who face mortgage default or similar financial troubles. This research may also connect two fields that are vital in improving the well-being of individuals, families, and communities—marriage and family studies with consumer sciences.

CHAPTER II

LITERATURE REVIEW

Theoretical Frameworks

Family Stress Theory

Observing the aftermath of the Great Depression of the 1930s, Reuben Hill began to study how families responded to the effects of stressors. He noticed that families who were experiencing similar economic situations reacted in far different manners. What followed were the beginnings of family stress theory, a model suggesting that families attempt to maintain equilibrium, and when faced with a stressor, plummet downward in functioning and are forced to call upon their resources to enter a phase of reorganization (Malia, 2006). Later expanded by McCubbin and McCubbin (1988), family stress theory emphasized the importance of perceptions and context on the outcomes and responses of family systems. McCubbin and McCubbin (1988) also highlighted the importance of family resiliency and hardiness in coping with the stresses families face, describing the properties of families that help them resist disruption.

Expanding on family stress theory, Conger and colleagues (1999) developed and evaluated the family stress model of economic stress influences on marital distress. This model suggests that economic pressure (a construct that uses indicators such as an inability to purchase necessities, or having to "reduce normal expenditures to meet increasing financial demands") increases the risk for emotional distress, which then increases the risk of marital conflict and subsequent marital distress (Conger et al., 1999). The emotional distress of both husband and wife may include feelings of depression,

anxiety, and anger, making the couple more susceptible to marital conflict, which might include criticism, defensiveness, negativity, anger, or withdrawal (Conger et al., 1999). The authors further suggested that under stressful circumstances, supportive couple relationships based on reassurance, affection, and listening may act as buffers between the economic pressure and individual spouses' distress. In turn, strong problem-solving skills mediate the path from marital conflict to marital distress (Conger et al., 1999).

Conger and colleagues' (1999) model of economic stress influences on marital distress may also explain the relationship between housing variables and marital satisfaction. Owning a mortgaged home can be a double-edge sword—it is both an asset and a liability; a considerable debt and a potential source of equity. Depending on several variables, including the housing cost burden ratio, the amount of equity, their perceived degree of economic pressure, and several others, a couple's perception of homeownership may be that of a considerable stressor to the family system.

If a couple is spending a substantial portion of their income on home-related expenses, leaving little left over for necessities, this would be related to Conger and colleagues' (1999) construct of economic pressure. A higher housing burden ratio would be expected to leave couples more vulnerable to increased feelings of economic pressure, which would then decrease marital satisfaction. Equity may have the opposite effect. A couple may construe high amounts of equity as a financial resource, which would act as a buffer to decrease feelings of economic pressure. Decreases in economic pressure would then lead to higher levels of marital satisfaction.

Extrapolating on Conger and colleagues' (1999) model, given a high cost burden combined with low (or even negative) equity, and perceptions of significant economic

pressure, it would be expected that a couple would view homeownership and the mortgage payment negatively. This strain would then increase the risk of each spouse experiencing emotional distress. Emotionally distressed couples are more likely to experience marital conflict, which often leads to marital distress. It may be assumed that marital conflict and distress will also be associated with decreased marital satisfaction. Alternatively, given a low cost burden, a high amount of equity, and perceptions of little economic pressure, the opposite effect may be expected, and marital satisfaction is likely to increase.

Another useful model is Hill's (1949, 1958) ABC-X model, where 'A' represents the stressful event, 'B' represents the resources available, 'C' represents the perceptions of 'A', and 'X' represents the degree of stress or crisis a family experiences (Malia, 2006). For example, 'A' might be an unaffordable mortgage payment, which interacts with 'B,' the familiy's resources. Do they have substantial savings? Are they in a position to sell the home or find a way to reduce monthly payments? Are they aware of the services a counseling agency can provide? These factors then interact with 'C,' the family's perception of the mortgage payment. Does each spouse feel that they are sacrificing too much to afford the home? Is staying in the home worth the responsibility of the mortgage? The interaction of 'A,' 'B,' and 'C' will then lead to 'X', which is the degree of stress, or how the process plays out.

This whole process takes place within internal and external contexts. Is a poor economy making the strain seem worse? How stable is each spouse's job? Are they new homeowners who have not experienced this kind of responsibility in the past? What are their family values—do they value what their home may symbolize more than the costs

associated with the mortgage? All of these factors will interact with each other to determine how the family stress process is played out, which in turn, may impact marital quality. It may be the case that marital satisfaction decreases due to maladaptive family processes or inadequate levels of reorganization after a crisis. A resilient couple may decide that given their resources and perceptions, the best way to adapt to the economic stress is to find an alternative housing situation. Resilient couples find bonadaptive ways to reorganize back to equilibrium, becoming hardier as they learn to cope and grow from the experience.

Based on the assumptions of family stress theory, the following is hypothesized:

Hypothesis 1: A higher housing burden is associated with lower levels of marital satisfaction, mediated by couples' perceptions of economic pressure.

Hypothesis 2: Higher amounts of home equity (both dollar amounts and percentages of home values) are associated with higher levels of marital satisfaction, mediated by couples' perceptions of economic pressure.

Mental Accounting Theory

The motives of purchasing a home can be construed in terms of costs and utilities, and are best explained using mental accounting theory. Prelec and Loewenstein (1998) investigated the mental accounting of savings and debt and developed a model that moved beyond traditional economic analysis of consumer choice—a model that can be applied to the duality embedded in a home purchase. The traditional approach assumes that the cost of a purchase equates to a reduction in future utility—that satisfaction will decrease when purchases are forgone in favor of a previous one. Prelec and Loewenstein

(1998) suggested the idea that when a purchase is made, a person will often experience an immediate "pain of paying," which can undercut the pleasure that is derived from consumption. For example, a couple purchasing a home may feel their pleasure of consumption is compromised by the enormous "payment" they are undertaking. Double-entry mental accounting theory is proposed by the authors to explain the relationship between this pleasure of consumption and the pain of paying, and is used to draw implications for consumer behavior and hedonics.

Supplementing the traditional economic analysis of consumer choice, which assumes that consumers finance expenditures so as to minimize the present value of payments, Prelec and Loewenstein's (1998) model suggests more complex motives. This model incorporates the complication that debt is unpleasant—for most people, it feels good to be rid of debt, especially when the pleasure derived from whatever was financed is inadequate (Prelec & Loewenstein, 1998). From the economic view, the costs and benefits of paying off a loan should be a purely financial matter; but according to the authors, this process changes the satisfaction that comes from the purchase (Prelec & Loewenstein, 1998). In the case of housing, the unpleasant nature of debt may be amplified. Particularly if a couple is less satisfied with their home, the weight of a mortgage can be a potent "pain of paying." Signing their name to a mortgage generally indicates a couple's largest, most significant undertaking of debt—and if the pleasure derived from the benefits of ownership is inadequate, couples will be left dissatisfied, which may adversely impact their relationship quality.

A couple's appraisal of the costs of payment and benefits of ownership, whether the pain outweighs the pleasure, may be mediated by other factors. For one, a couple

with a fair amount of equity in the home may feel buffered from the unpleasantness of debt—this factor may increase the pleasure of consumption as the couple witnesses their liability evolve into an asset. A couple in such a situation is more likely to feel satisfied with their overall financial situation, and consequently, may experience higher levels of marital satisfaction. Alternatively, a couple who is experiencing a housing cost burden, who is also unsatisfied with their home, may feel that the burden is too great to justify the payment and debt-laden status. This may lead to lower levels of marital satisfaction.

Double-entry mental accounting theory proposes two central concepts: prospective accounting and coupling. Prospective accounting asserts that a consumer can enjoy a good or service that has already been purchased as if it were free. The pain that was associated with the initial payments (made before consumption) is "buffered by thoughts of the benefits that the payment will finance," (Prelec & Loewenstein, 1998, p. 4). In the case of a home purchase, the pain associated with the closing process, upfront costs, and interest rates may be buffered by the thoughts of the benefits of owning a home and building equity—although, the continual monthly payments may be a constant reminder of that pain. Due to the unique nature of a mortgage, for some couples, it may not feel as though they literally "paid" the money, as little physical cash is exchanged in the home buying process.

Another key concept in mental accounting theory is coupling. This refers to the "degree to which consumption calls to mind thoughts of payment, and vice versa," (Prelec & Loewenstein, 1998). For instance, credit cards tend to weaken coupling, as a consumer does not physically see cash leaving his hand in exchange for an item. For many consumers, when coupling is weak—when consumption does not call to mind

significant thoughts of payment—irresponsible spending behavior may follow. Using cash, on the other hand, tends to tighten coupling. A shopper feels the cash leave his wallet in exchange for a purchase. A mortgage may be more like a credit card in that consumers enjoy the benefits of living in the home before they have entirely paid for it, and thus, may not fully relate the home to thoughts of payment. Alternatively, monthly mortgage payments may act as a constant reminder of the debt, causing a tighter correlation between the home and the payment in the couple's minds.

One of the predictions made by Prelec and Loewenstein's (1998) model is that of strong debt aversion. The authors believe that people prefer to prepay for consumption or to get paid for labor after it is finished. These situations would increase the pleasure of consumption, as it can be enjoyed without the obligation of a future payment weighing on their minds. This suggests that ideally, couples would prefer to pay for their homes outright, without the hindrance of a mortgage. As this is virtually impossible for almost all potential homeowners, couples are left to deal with a less than ideal situation, a scenario that leaves a marriage vulnerable in regards to satisfaction. As the authors state, "thinking about the cost of a purchase can undermine the pleasure one derives from it, [and] thinking about the benefits derived from a purchase can blunt the pain of making payments" (Prelec & Loewenstein, 1998, p. 5). Thus, a couple's pleasure from homeownership may be undermined by thinking about its cost; or the thought of the benefits may buffer the pain of continual mortgage payments—the direction of the perception depends on the housing variables discussed.

Based on the assumptions of mental accounting theory, the following is hypothesized:

Hypothesis 3: The relationship between housing burden and marital satisfaction is moderated by (depends on) satisfaction with the home.

Hypothesis 4: Higher amounts of home equity (both dollar amounts and percentages of home value) are associated with higher levels of marital satisfaction, mediated by couples' satisfaction with their financial situation.

Previous Literature

There has been relatively little research in the area of debts/assets and their impact on marital relationships—and even less on mortgage debt and equity. However, the existing literature does provide a basis of knowledge from which to understand the relationship between housing factors and marital satisfaction. Most of the literature related to this topic deals more directly with economic pressure, financial strain, and similar constructs in understanding marital satisfaction, quality, and conflict. These will be used as a foundation for the study at hand and implications can be drawn from related constructs to those involved in this study.

Across several studies, there is a pathway leading from some form of economic issue to negative marital outcomes. For instance, Kinnunen and Feldt (2004) showed that the path from poor economic circumstances to poor marital adjustment began with a link to economic strain, which was associated with increased pyschological distress, which then related negatively to marital adjustment. Their results were congruent with Conger and colleagues' (1990) original family stress model of economic stress influences on marital distress. Conger and his colleagues similarly discovered that economic pressure increased the risk for emotional distress, which increased risk for marital conflict and

subsequent distress. As previously discussed, homeownership may or may not be perceived as an economic pressure. Results for the proposed study will depend on how spouses construe their situations. If the home is seen as a burden, results may be similar to the finding of these researchers.

Other studies have likewise made a connection between economic variables and marital satisfaction. Conger and colleagues (1990), for example, sought to connect economic hardship to marital instability, this time through mediators of spousal hostility and spousal warmth. Their findings indicated an indirect relationship between economic pressures and each spouse's perceptions of the marriage. A decline in warm, supportive behaviors as well as an increase of hostility in marital interactions mediated the relationship. Likewise, a stressful housing situation may impact each spouse's behavior, perhaps causing less support and warmth, and consequently decreased marital satisfaction.

A similar connection, albeit through different mediating variables, was reported by Higginbotham and Felix (2009). Studying newly remarried couples, Higginbotham and Felix (2009) found gender differences in the economic factors affecting relationship instability. Financial concerns were a stronger predictor of marital satisfaction for wives, while the relationship quality for men was more highly correlated with the ability to make ends meet. The proposed study includes spouses' perceptions of economic pressure, or worry over their ability to meet expenses, as a mediating variable; this is a similar construct to the financial concerns these authors investigated. Results may mirror Higginbotham and Felix's findings that financial concerns, in the similar form of economic pressure, directly affect marital satisfaction. Furthermore, an inability to make

ends meet qualifies under Conger and colleagues' (1999) definition of economic pressure, which has consistently been connected to poor marital outcomes across the literature.

The literature supports the idea that economic pressure relates to marital outcomes, generally through various mediators. A question for the proposed study then, is whether housing costs are classified as an economic pressure. Because of the unique characteristics of a mortgage—that it is inherently both an asset and a debt—it may be in a category all its own. In an exploration of the effects of two ends of a financial spectrum as they relate to marital satisfaction, Dew (2007) found that assets and debt may have different influences on marital outcomes. He found that consumer debt and assets worked independently, rather than in complementary ways to each other. His results indicated that assets worked indirectly on marital outcomes by decreasing feelings of economic pressure, while debt directly predicted negative changes in marital satisfaction. Because a mortgaged house can be both an asset and a debt, the proposed study seeks to understand which influences are greater in the context of marital satisfaction. Dew focused on the differing effects of consumer debt and assets, while the proposed study will attempt to analyze the distinctive qualities of mortgage debt and home equity.

Looking specifically at changes in debt, Dew (2008) found an indirect relationship between debt change and marital satisfaction change using mediator variables. Four mediators were examined: changes in work hours, changes in spouses' time together, changes in conflict over money, and changes in feelings of financial unfairness. Dew (2008) predicted that the assumption and servicing of debt would correlate with increases in work hours, marital conflict, and unfairness, and decrease couples' time together—each of which was predicted to impact marital outcomes. He

found that through these variables, a change in debt did predict change in marital satisfaction. Interestingly, Dew (2008) also found that mortgage debt change predicted increases in work hours, which decreased time together, which subsequently decreased marital satisfaction levels. Although his study did not focus on mortgage debt specifically, Dew's (2008) results may be indicative of similar results for the proposed study.

Also examining the importance of couples' time together as a mediator, Gudmunson, Beutler, Israelsen, McCoy, and Hill (2007) attempted to link financial strain to marital instability by examining the roles of emotional distress and marital interaction. They, too, found that the financial strain a couple experiences was strongly correlated with increases in both spouses' emotional distress and in couple disagreements. These, in turn, impacted each spouse's assessment of marital instability. Each of these factors may also play into the relationship between mortgage debt/equity and marital satisfaction as other possible mediators.

Several studies have shown connections between economic factors and marital outcomes through various mediators. The proposed study will examine mortgage debt and equity specifically in relation to marital satisfaction through the mediators of satisfaction with the home, satisfaction with finances, and perceptions of economic pressure. While there have been extremely few studies done to indicate the impact that satisfaction with the home will have on marital outcomes, there have been a few that provide insights into satisfaction with finances. In a study investigating financial management, financial problems, and marital satisfaction, Kerkmann, Lee, Lown, and Allgood (2000) examined financial behaviors and perceptions held by recently married

student families. Findings from this study indicated a significant relationship between perceptions of how well finances were managed and marital satisfaction. Similarly, the couple's perceived magnitude of financial problems was also related to marital satisfaction. These variables of financial management and perceptions of problems may be closely related to a couple's perceptions of economic pressure, as this construct may incorporate both of those used in the Kerkmann et al. (2000) study.

The literature suggests that actual and perceived financial hardships relate to declines in marital quality. Conversely, actual and perceived financial buffers, namely assets, relate to positive marital outcomes. Homeownership potentially encompasses both ends of this spectrum; however, it is hypothesized that the positive perceptions will outweigh the negative. Although a home can represent a significant debt and burden, previous research suggests that positive financial buffers may be more strongly related to positive marital outcomes, often by decreasing feelings of financial strain or economic pressure. Having access to community resources, realizing the American Dream, and building a valuable asset all positively influence couples' perceptions of homeownership. Virtually all homeowners are actively transforming their debt into one of their largest sources of wealth, however slowly, so it is expected that homeownership will be perceived positively, and will be positively associated with marital satisfaction.

Hypothesis 5: Homeowner status, as opposed to renter status, is associated with higher levels of marital satisfaction.

CHAPTER III

METHODOLOGY

Data and Sample

This study used existing data from the National Survey of Families and Households (NSFH), which granted access to professionally-researched sampling and instrumentation. This data was collected through longitudinal-sequential design—the first wave included a main cross-section of approximately 13,000 households in 1987 (including parents and children of varying ages), followed by a second wave in 1992 that included the same respondents plus new participants, then a third wave in 2001. Overall, approximately 17,000 respondents from over 100 sampling areas participated. There was an oversampling of Blacks, Puerto Ricans, Mexican Americans, single-parent families, families with stepchildren, cohabiting couples, and recently married persons. A wide range of information was collected, including family living arrangements in childhood, education, and employment. The study was undertaken explicitly to "provide a data resource for the research community at large and was designed with advice from a large number of consultants and correspondents. The substantive coverage has been kept broad to permit the holistic analysis of family experience from an array of theoretical perspectives" (NSFH, 2010, p. 1).

For the purposes of the proposed study, this nationally representative sample was optimal for the target population, which was all U.S. individuals aged 19 and older, living in households. The target population of the proposed study was all married couples in the U.S. who own homes or rent. The unit of observation of the NSFH data was the

individual, as the definitions of “household” and “family” are constantly evolving and become problematic in the analysis. Because such care and precision was taken in the selection of this sample, the external validity of this study was strong, and results may be generalizable to the national population at the time of the survey.

Probability sampling was used, which also increased the study's external validity. Participants were picked through a fairly complex process known as simple random selection, detailed by Sweet, Bumpass, and Call (1988), where each participant had an equal probability of being selected. The rationale for this sampling procedure is that randomly selected samples yield data that is more generalizable to a larger population within statistically-calculable margins of error. Participants were drawn from the Institute for Survey Research of Temple University (ISR) Primary Sampling Unit National Sampling Frame.

The sample size of over 5,000 individuals was certainly adequate for the analyses performed in the proposed study. With such a large sample, scores were more likely to be normally distributed, which allowed for more powerful, parametric analyses. The NSFH data was narrowed to only married couple participants who either rented or owned a home. To address hypotheses 2 and 4 (involving equity), the renters were removed from the sample. The remaining sample was not divided into subgroups; rather, the housing characteristics of all participants were compared to the marital satisfaction levels of the same entire group.

The NSFH data was best suited for this study, as it is a nationally representative, longitudinal study. It is the only national data set that could adequately answer the proposed hypotheses of this study. NSFH had relevant and reliable measures of both

relationship quality and financial variables, making this dataset the most appropriate choice. The focus of this study emphasized the relationships between housing factors and marital relationships, rather than generalizability.

Research Design

This study is a correlational design, as it attempted to determine the magnitude of the relationships between variables. Data were examined from one group of participants and compared on multiple variables. This study did not attempt to identify a cause and effect relationship between housing variables and marital satisfaction. Because the independent variables could not ethically or logically be manipulated, and there could be no random assignment, an experimental design was ruled out. A causal comparative design would have been viable; however, because of the enormous breadth of variables that affect marital satisfaction, this study did not seek to support a cause-effect relationship. Because this study sought to examine the relationship between housing variables and marital satisfaction, a correlational design was the most appropriate design.

Variables

One dependent variable was examined: level of marital satisfaction (measured on an interval/ratio scale). This study had two main independent variables: (1) housing burden ratio (measured on an interval/ratio scale), and (2) amount of home equity (measured on an interval/ratio scale; included three dummy variables and one continuous variable). There were two mediating variables: (1) satisfaction with financial situation (measured on an interval/ratio scale), and (2) perceptions of economic pressure

(measured on an interval/ratio scale). There was one moderating variable: satisfaction with home (measured on an interval/ratio scale). Other independent variables included: (1) homeowner versus renter status (nominal; dummy coded), (2) race (nominal; dummy coded), (3) age (continuous; measured on an interval/ratio scale), (4) education (continuous; measured on an interval/ratio scale), and (5) income (continuous; measured on an interval/ratio scale).

The dependent variable was measured on an interval/ratio scale. While the NSFH data set provided very sophisticated instruments to measure marital quality, this study used a considerably simplified measure of marital satisfaction. The NSFH survey asked participants to answer several questions (approximately 50) regarding the quality of their current marriage including satisfaction with the relationship, fairness in relationship, time spent together, disagreements and arguments, trouble in marriage, and so forth. Several questions were measured on a Likert scale from 1-7, where 1 is very unhappy and 7 is very happy. Some questions ranged from only 1-5. For this study, the measurement of marital satisfaction only considered the satisfaction scores participants provided for four aspects of their marriages: (1) the understanding received from a spouse, (2) the love and affection received from a spouse, (3) the amount of time spent with a spouse, and (4) the sexual relationship with a spouse. The scores on each of these items were added together to create a marital satisfaction variable. This study assumed the distances between each value on the Likert scale as equal, allowing it to move from an ordinal scale to an interval/ratio scale, consequently allowing for more sophisticated analysis.

The housing burden ratio was measured on a ratio scale, as it was a continuous variable with equal distances between values. The housing burden ratio is the monthly

amount a household is paying for housing costs, including utilities and either the full PITI (principal, interest, taxes, and insurance) mortgage payment or rent payment divided by its gross monthly income. Although HUD defines a household as burdened if this ratio is above a threshold of 30%, and severely burdened if it is above 50%, this study categorized participants without these thresholds. Generally, more advanced analyses were possible if this ratio was measured continuously. The study may have more statistical power if a continuously measured magnitude of the burden ratio is correlated with marital satisfaction. Based on the NSFH data available, the burden ratio was calculated by dividing respondents' PITI payment or rent payment by their reported household monthly income.

The amount of home equity was measured in U.S. dollars on an interval/ratio scale, as it was a continuous variable. Home equity was defined as the current market value of the home minus the outstanding mortgage balance. It was also useful to express home equity as a percentage of equity divided by the home's value, as this controlled for varying home values. Dummy variables were used for this variable. Because this sample's distribution of home equity was quite skewed, it was necessary to transform the data using the square root. This created a more normal distribution, which more closely follows the assumptions necessary for regression analysis. Cases of negative equity were set to zero, but not before calculating a dichotomous variable for negative or positive equity. In this way, negative equity was included in the regression analyses.

Homeowner status as opposed to renter status was measured on a nominal scale, and was dummy coded (0 = renter, 1 = homeowner). Each mediator variable was measured on an interval scale. Both satisfaction with home and satisfaction with

financial situation were measured on a Likert scale, ranging from one to five or one to seven; intervals were assumed to be equal. The analyses performed in this study controlled for the variables of race, age, education, and income in order to better understand the extent of the impact that the main independent variables exerted on marital satisfaction.

Methods of Data Collection

Variables were measured by self-report through questionnaires and interviews. NSFH collected data by first sending out an introductory letter to potential participants with information about the survey. Interviewers then visited participants' homes for a screening interview, which gathered basic information about the household. Finally, the main interview took place (often at the same time as the screening interview if the primary respondent was available). During a portion of this interview, participants were asked to fill out a self-administered questionnaire. Thus, in this study, the measurement of each variable was measured through self-report with questionnaires and interviews.

Because each of the variables was self-reported, there were some threats to the validity and reliability of this study. Validity could be an issue, as participants might have interpreted questions differently or were perhaps not completely truthful in their responses. There was no final question asking respondents whether they understood the questions from the survey. It is also assumed that the NSFH survey used reliable measures (that the scores are reliable), although probably not perfect. Sweet et al. (1988) believed it reasonable to expect that "the respondents can provide reasonably reliable reports," especially for financially oriented questions (p. 30).

Data Analysis

Descriptive statistics were first calculated to summarize the sample's characteristics. The frequencies and distributions of demographic factors such as race, age, education, and income were summarized, as well as the means, medians, high/low values, and standard deviations of the main dependent and independent variables. Frequencies were also calculated for the housing burden, as well as dollar amounts of home equity to give an idea of the sample's levels of debt versus equity. Finally, the proportion of participants who rent or own homes were calculated. Both real values and percentages were presented.

Inferential statistics were also calculated. For the fifth research hypothesis (homeownership and marital satisfaction), multiple regression analysis was performed, with homeowner status as the main independent variable, and marital satisfaction as the main dependent variable. This analysis controlled for race, age, education, and income.

To answer the four remaining hypotheses, three mediation models were tested in total, each requiring three regression analyses. A mediation model was most appropriate in testing whether some variable mediated the relationship between two other variables (Howell, 2002). Instead of a direct relationship between an independent and a dependent variable, a mediation model tests whether a third variable connects a path between them. Three regression analyses were performed to test economic pressure as a mediator between housing burden and marital satisfaction. Three more regression analyses were performed to test another mediation model between equity and marital satisfaction, using economic pressure as the mediating variable.

One moderator model was tested, requiring two regression analyses. Unlike a mediation model which "attempts to identify a variable or variables through which the independent variable acts to influence the dependent variable," a moderating relationship refers to "situations in which the relationship between the independent and dependent variables changes as a function of the level of the third variable" (Howell, 2002, p. 577). In other words, the relationship between two variables depends on, or is affected by the third. In this model the relationship between housing burden and marital satisfaction was tested using satisfaction with the home as a moderating variable. In the final mediation model, the relationship between equity and marital satisfaction was tested using satisfaction with finances as a mediating variable. Each model controlled for race, age, education, and income. A total of twelve regression analyses were required to test the moderation and mediation models; however, only eleven unique analyses were run in total, as one of the regressions was redundant and mirrored a previous analysis (see Figures 1, 2, 3, and 4 for clarification).

IRB Statement

Because the interviews and questionnaires have already been administered, any threat to participants has already been addressed by the administrators of the NSFH. The appropriate applications were submitted for approval from Utah State University's Institutional Review Board; however, because the proposed study used only extant, public data, no approval was necessary.

Hypothesis	Model	Regression	Independent Variables (Plus Controls)	Dependent Variable	Expected Relationship
1	1	1	Housing Burden	Economic Pressure	-
1	1	2	Housing Burden	Marital Satisfaction	+
1	1	3	Housing Burden & Economic Pressure	Marital Satisfaction	-
2	2	1	Equity	Economic Pressure	+
2	2	2*	Equity	Marital Satisfaction	-
2	2	3	Equity & Economic Pressure	Marital Satisfaction	-
3	3	1	Housing Burden & Housing Satisfaction	Marital Satisfaction	- +
3	3	2	Housing Burden, Housing Satisfaction, & Interaction	Marital Satisfaction	- +
4	4	1	Equity	Satisfaction with Finances	+
4	4	2 (*Same as Model 2, Regression 2)	Equity	Marital Satisfaction	+
4	4	3	Equity & Satisfaction with Finances	Marital Satisfaction	+
5	5	1	Home-ownership Status	Marital Satisfaction	+

Figure 1. List of hypotheses, models, and corresponding regression analyses.

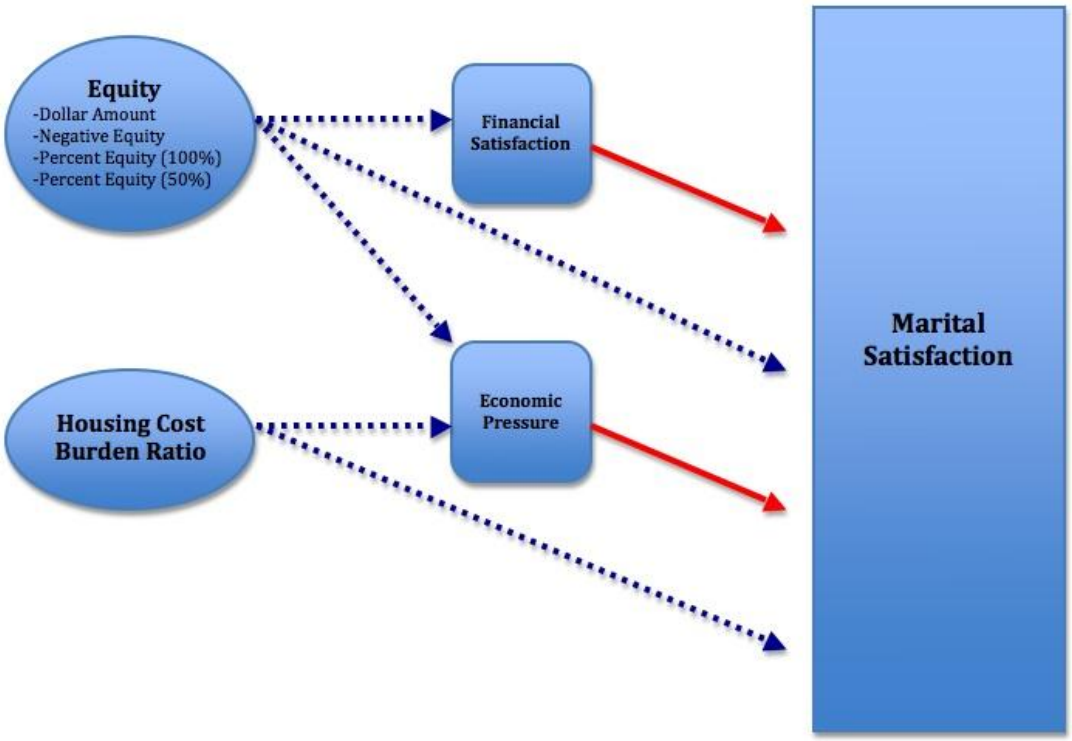

Figure 2. Three mediation models. (Solid lines represent a relationship between both independent variables and marital satisfaction).

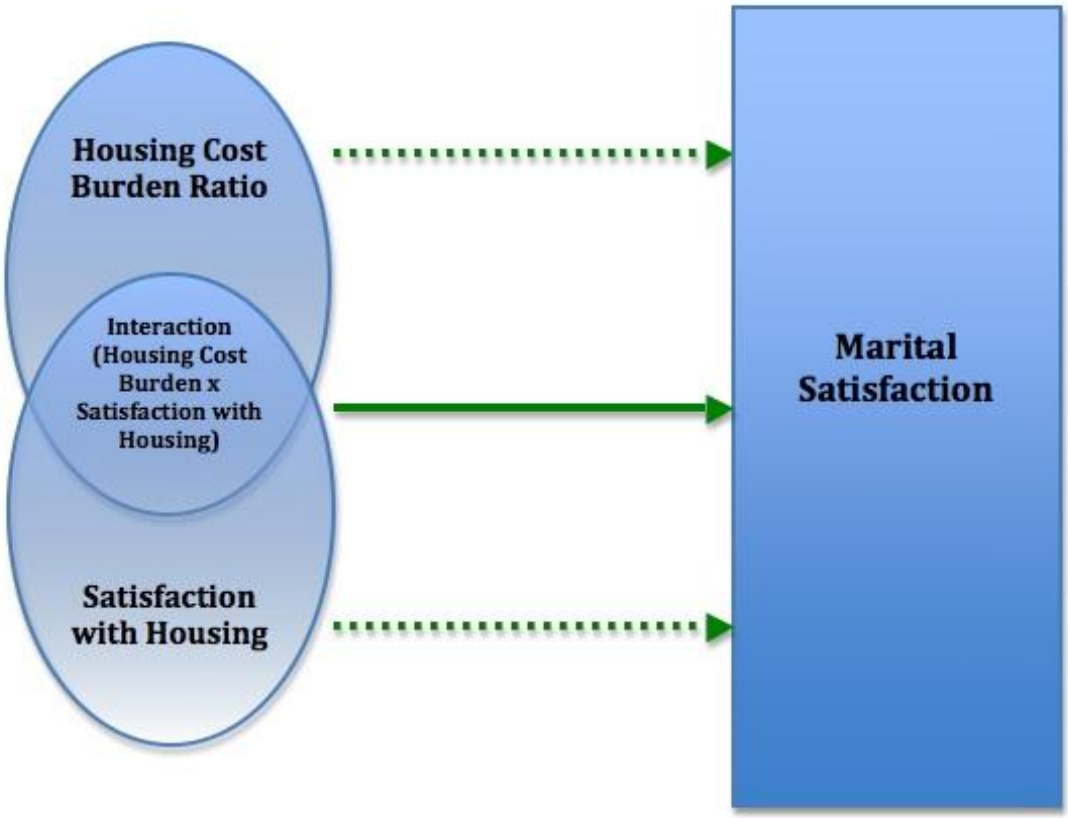

Figure 3. Moderation model. (Dotted lines represent main effects; sold line represents interaction effect).

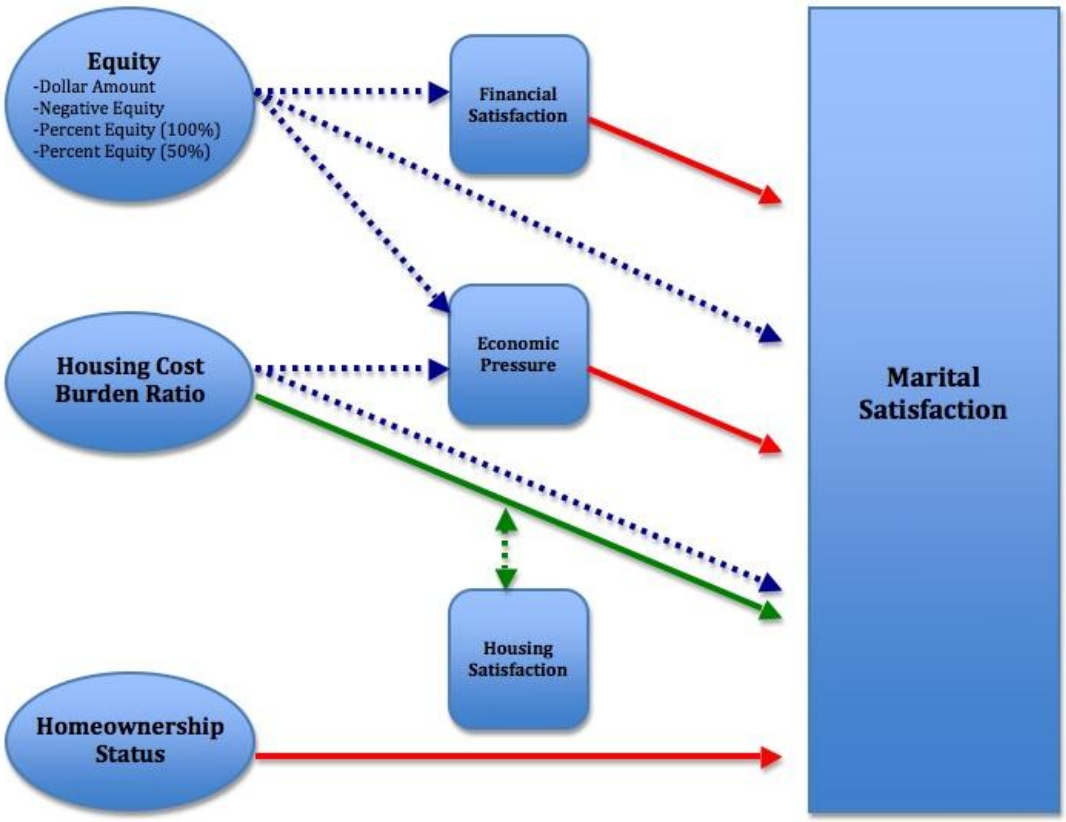

Figure 4. All five models.

CHAPTER IV

RESULTS

Preliminary Data Cleaning

The first step in data cleaning was to do an exploratory analysis of the raw data. To identify possible data entry errors and outliers, frequency distributions, histrograms, and box plots were analyzed. Several decisions were made regarding outliers and data errors. For instance, any annual income less than $1,200 was dropped from this study, as it was assumed this group either received welfare benefits or there was data error. Any cases that listed annual property taxes as higher than $20,000 were also dropped. As no home selling price ever surpassed $900,000, it is fairly safe to assume that any case higher than $20,000 in taxes is data error. Approximately 2% of the sample had a housing burden ratio greater than .80—some reaching higher than 3. Conceptually, this would mean that households were paying more than 80%, sometimes 3 times their income, on their home. As this is an implausible scenario, and likely due to error, cases over .8 were dropped from the study.

In some cases, it was clear that values had been entered in error. For instance, if a case listed the selling price of the home as $850,000, but annual income was only $15,000, the case was dropped. Similar logical fallacies were present across several variables, so major outliers were examined more closely. These cases, based on cross validations, were dropped from the study.

In the case of the amount owed on the home and the monthly mortgage payment, the data had to be cleaned. It was assumed that if a participant listed his home as fully

paid off (i.e., amount owed = 0), his monthly housing payment should also be zero. The original data was inconsistent, with many payments listed as missing values. Similar problems arose when a case was missing the amount owed, but listed a monthly payment value. Ultimately, the data was cleaned so that a zero in amount owed equated to a zero in the monthly payment, and vice versa. A missing value in amount owed equated to a missing value in monthly payment, and vice versa. Thus, someone with a truly paid off home (amount owed = 0 and payment = 0) would have a PITI of zero, and consequently a housing burden of zero. This technique was performed in order to differentiate between true zero values and missing values. Although homeowners always owe taxes and insurance, even after the home is paid off, the survey questions did not allow for a distinction to be made. Consequently, a couple with a paid off home would have a housing burden of zero, rather than a small ratio that included solely tax and insurance payments. Across computed variables, any system-missing cases were listwise deleted.

In the case of equity, a new variable was created to account for cases with negative equity (couples who owe more than the home is worth). This scenario comprised less than 2% of the sample. In order to account for these negative cases in the regression analyses, a dichotomous dummy variable was set to 0 in cases of positive or zero equity, and 1 in cases of negative equity. In the original equity variable, cases of negative equity were set equal to zero. This was necessary in order to take the square root of such a highly skewed variable. In order to account for unacceptably high skewness values (i.e., greater than plus or minus 1.1), some variables were also transformed using the square root. Once these functions were performed, more variables showed statistically normal distributions, an assumption necessary to obtain more robust

regression analyses.

In order to account for the percentage of equity to selling price (i.e., equity divided by selling price), two dummy variables were created. On a continuous scale, equity as a percentage of home selling price was non-normally distributed. The extreme non-normality of this variable necessitated the creation of dichotomous variables. The first variable (percent equity 100%) was coded 1 for cases of 100% equity, and 0 for all cases with anything less than 100% equity. Approximately one third of this sample had fully paid off their homes (i.e., percent equity was 100%). In the presence of the second dummy variable (discussed below), the omitted category in the regression analyses would be those with less than 50% equity in their homes. Conceptually, this variable might predict whether having one's house fully paid off affects marriages differently than owing more than half of the loan balance. The second dummy variable accounting for percentage equity (percent equity 50%) was coded 1 for cases having 50-99.99% equity in their homes, and 0 for cases that had less than 50% equity. This variable might give insight into whether having more than 50% of a home paid off affects marriages differently than having less than 50% of a mortgage paid off. All together, four equity variables were used: the continuous dollar amount of equity, the dummy coded negative equity (negative equity), the dummy coded percent equity with 1 = 100% equity and 0 = all cases less than 100% equity (percent equity [100%]), and the dummy coded percent equity with 1 = 50% equity or greater and 0 = less than 50% equity (percent equity [50%]).

After addressing outliers, data entry errors, and the recoding of variables, the normality of key variables was tested. It was decided that variables with a skewness

score of greater than plus or minus 1.1 violated the normality assumption required for regression analysis too greatly, and would affect the outcomes of the analyses in a misleading way. In order to reduce the positive skew of certain variables, the square root transformation was performed. Taking the square root of scores compresses the data into a more normal distribution, bring scores closer to the center. The variables that had a high enough skew to necessitate a square root transformation were income and equity in dollars.

Descriptive Statistics

In Table 1, descriptive statistics have been calculated for each of the main variables. The mean age of participants in the study was 46 years. The average respondent had nearly 13 years of education, and grossed $3,950 per month. Although varying widely, the median amount for home equity was $45,000. Many of the respondents had previously paid off their homes, pulling the average housing burden down to a ratio of .139. In other words, average participants (including renters) spent almost 14% of their income on housing expenses. This sample rated their marriages relatively high, with an average of 22 points out of 28 on the multi-dimensional marital satisfaction scale. Average respondents owed $25,000 on their homes. Out of 5,097 participants who answered the question (N = 5097), 4167 owned a home—81.8%. There were more White respondents (82.4%) than non-White (17.6%). Only 1.5% of the sample had negative equity in their homes, and less than 1% (.8%) had no equity. Over a quarter (28.7%) of the sample had 100% equity in their homes.

Table 1

Descriptive Statistics for Main Variables

Variables	*n* (%)	Min	Max	Mean (*SD*)	Median
Owner					
Yes	4167.00 (81.8)	-	-	-	-
No	930.00 (18.2)	-	-	-	-
Race					
White	4200.00 (82.4)	-	-	-	-
Non-White	897.00 (17.6)	-	-	-	-
Age	5097.00	23.00	96.00	45.72 (14.31)	42.00
Education (years)	5086.00	10.00	20.00	12.95 (2.84)	12.00
Gross monthly income	5097.00	1200.00	71133.33	4597.51 (3525.59)	3950.00
Equity	3965.00	-170000.00	515000.00	62084.84 (65922.69)	45000.00
Negative equity					
Yes	74.00 (1.8%)	-	-	-	-
No	4093.00 (98.2%)	-	-	-	-
Percent equity					
100% equity	1136.00 (28.7%)	-	-	-	-
Less than 100% equity	2829.00 (71.3%)	-	-	-	-
Percent equity					
More than 50% equity	2336.00 (58.9%)	-	-	-	-
Less than 50% equity	1629.00 (41.1%)	-	-	-	-
Housing burden (renters incl.)	5097.00	0.00	.80	.14 (.13)	.10
Economic pressure (1-5)	4980.00	1.00	5.00	3.01 (1.14)	3.00
Marital satisfaction (4-30)	4890.00	4.00	28.00	21.66 (5.40)	23.00
PITI	4167.00	0.00	4533.33	484.93 (497.51)	400.00
Owed on home	4166.00	0.00	700000.00	40333.53 (50490.66)	25000.00

Inferential Statistics

Hypothesis 1

Hypothesis 1: A higher housing burden is associated with lower levels of marital satisfaction, mediated by couples' perceptions of economic pressure.

In order to address this hypothesis, both renters and homeowners were included, as both groups have a value for housing burden. This hypothesis was tested using three regression analyses. The first one used economic pressure as the dependent variable, with housing burden, homeowner status, race, education, age, and income as independent variables. In this analysis (see Table 2), housing burden was found to be significantly related to economic pressure with a *p* value less than .001—a successful first step in the

Table 2

Linear Regression Mediation Model 1, Regression 1 (DV: Economic Pressure; IV: Housing Burden, Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	5.255	.098		.001
Housing burden	.692	.105	.093	.001
Owner	-.187	.041	-.063	.001
Race	-.108	.041	-.036	.008
Education	-.033	.006	-.082	.001
Age	-.019	.001	-.238	.001
Income	-.004	.001	-.243	.001

Note. $R^2 = .150$.

mediation model. As housing burden increased one unit, economic pressure increased by .692 units. In this case, all independent variables significantly predicted economic pressure. Those who were older, White, owned a home, were more educated, and had more income were less likely to experience economic pressure.

Because housing burden was statistically significant, the second regression analysis was completed using marital satisfaction as the dependent variable, with housing burden, homeowner status, race, education, age, and income as independent variables. This analysis (see Table 3) indicated a statistically significant relationship between housing burden and marital satisfaction ($p = .001$). As a couple's housing burden increased one unit (from 0 to 1), their marital satisfaction declined 2.096 units.

Table 3

Linear Regression Mediation Model 1, Regression 2 (DV: Marital Satisfaction; IV: Housing Burden, Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	20.652	.504		.001
Housing burden	-2.096	.533	-.060	.001
Owner	-.452	.210	-.032	.031
Race	-.284	.209	-.020	.175
Education	-.021	.032	-.011	.513
Age	.047	.006	.122	.001
Income	.001	.001	.003	.875

Note. $R^2 = .023$.

Homeownership status and age also significantly predicted marital satisfaction, with homeowners experiencing less marital satisfaction, and older couples experiencing more. It should be noted that owning a home predicted less marital satisfaction, a finding contrary to hypothesis five. This will be addressed later in this chapter. Race, education, and income were not significant predictors of marital satisfaction in this analysis.

The final regression required to test this mediation model used marital satisfaction as the dependent variable, with housing burden, economic pressure, homeownership status, race, age, education, and income as independent variables. In order for a full mediation model to be plausible, the presence of economic pressure as an independent variable must diminish the significance of housing burden as a predictor of marital

satisfaction. The results of this regression (see Table 4) indicate partial mediation. The beta value of housing burden was reduced when economic pressure was added to the regression; however, it remained a significant predictor of marital satisfaction. Both housing burden (p = .003) and economic pressure (p = .001) were significant predictors of marital satisfaction, with a higher burden and higher economic pressure relating to lower levels of satisfaction. Home owner status, age, and income were also significant predictors. Hypothesis one was paritally supported by the analyses, suggesting that economic pressure at least partially mediates the relationship between housing burden and marital satisfaction.

Table 4

Linear Regression Mediation Model 1, Regression 3 (DV: Marital Satisfaction; IV: Housing Burden, Economic Pressure, Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	24.736	.628		.001
Housing burden	-1.576	.532	-.045	.003
Economic pressure	-.786	.072	-.166	.001
Owner	-.556	.209	-.040	.008
Race	-.369	.208	-.026	.077
Education	-.048	.032	-.025	.129
Age	.033	.006	.085	.001
Income	-.003	.001	-.038	.025

Note. R^2 = .047.

Hypothesis 2

Hypothesis 2: Higher amounts of home equity (both dollar amounts and percentages of home values) are associated with higher levels of marital satisfaction, mediated by couples' perceptions of economic pressure.

To address this hypothesis, three linear regression analyses were performed. The first step in examining the possibility of a full mediation model was to test the effect of independent equity variables on economic pressure as a dependent variable, controlling for age, education, race, and income. This analysis was used to identify significant predictors of economic pressure. Results (shown in Table 5) indicated that equity measured as a continuous, square rooted dollar amount was a statistically significant predictor of economic pressure, with a *p* value of .001, and -.002 as the unstandardized coefficient. This suggests that for every unit increase in equity, there was a .002 unit decrease in economic pressure. Stated simply, more dollar amounts of equity predict less economic pressure. Equity as a percentage of home value was also statistically significant, but only the dummy variable using 100% equity versus less than 100% equity. When percentage equity was split between more or less than 50% equity, this variable was not a significant predictor. The negative equity dummy variable was not a significant predictor, suggesting that the presence of negative equity does not predict economic pressure.

Results indicated race, education, and age as significant predictors of economic pressure as well. The relationship between race and economic pressure was negative, indicating that when the dummy values for race changed from 0 (non-White) to 1 (White), and the values of the other independent variables remain constant, the levels of

Table 5

Linear Regression Mediation Model 2, Regression 1 (DV: Economic Pressure; IV: Equity, Negative Equity, Percent Equity (100%), Percent Equity (50%), Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	4.606	.132		.001
Equity (sq rt. dollars)	-.002	.001	-.176	.001
Negative equity	.021	.130	.003	.872
Percent equity (100%)	-.284	.051	-.115	.001
Percent equity (50%)	.084	.048	.037	.081
Race	-.139	.050	-.044	.005
Education	-.052	.007	-.128	.001
Age	-.010	.002	-.120	.001
Income	.001	.001	-.007	.643

Note. R^2 = .108.

economic pressure decreased by .139 units. Thus, White respondents were less likely to experience high levels of economic pressure. Likewise, as education increased, economic pressure decreased; and as respondents aged, they experienced less economic pressure. Interestingly, income was not significantly related to economic pressure, suggesting that feelings of economic pressure are relatively unaffected by income.

As the first regression of the mediation model showed significance, a second linear regression analysis was performed to test the relationship between equity and marital satisfaction (see Table 6). Results did not indicate square rooted dollar amounts

Table 6

Linear Regression Mediation Model 2, Regression 2 (DV: Marital Satisfaction, IV: Equity, Negative Equity, Percent Equity (100%), Percent Equity (50%), Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	20.097	.670		.001
Equity (sq rt. dollars)	.001	.001	-.005	.832
Negative equity	.179	.653	.005	.783
Percent equity (100%)	.679	.256	.057	.001
Percent equity (50%)	.404	.242	.037	.095
Race	-.286	.253	-.019	.259
Education	-.043	.036	-.022	.233
Age	.034	.008	.086	.001
Income	.002	.001	.023	.153

Note. $R^2 = .025$.

of equity as a significant predictor of marital satisfaction, meaning that a mediation model for this equity variable is not likely. However, the percentage of equity (dummy coded 100% versus less than 100%) was statistically significant, with a *p* value of .001. Couples that have entirely paid off their homes (100% equity) were more satisfied in their marriages.

Age was the other significant predictor of marital satisfaction in this analysis. As couples age, a corresponding increase in equity is likely, as well as an increase in marital satisfaction. Therefore, it is likely that age is the confounding factor between dollar

amounts of equity and marital satisfaction. Age is the most significant predictor of marital satisfaction in this analysis, so in the combined presence of age and percent equity, the effect of equity on marital satisfaction diminishes.

Although equity measured continuously in square rooted dollars did not show a statistically significant relationship with marital satisfaction, equity as a percentage (100% versus less than 50%) did. The final regression analysis for this model tested whether the presence of economic pressure diminished the significance of percent equity as a predictor of marital satisfaction.

The third regression analysis for this model tested each equity variable along with economic pressure as an independent variable, on marital satisfaction as the dependent variable. Results (see Table 7) indicated a full mediation model for percentage of equity (100% versus less than 50%). Economic pressure had a significant relationship with marital satisfaction, with an unstandardized coefficient of -.818; this indicated that more economic pressure tended to decrease marital satisfaction. When economic pressure was added to the model, the statistical significance of percent equity diminished, with a *p* value of .071, and an unstandardized coefficient of .460. Conceptually, this supports the theoretical framework and the hypothesis that higher amounts of home equity (as a percentage of home value, not dollar amounts) are associated with higher levels of marital satisfaction, mediated by couples' perceptions of economic pressure.

Hypothesis 3

Hypothesis 3: The relationship between housing burden and marital satisfaction is moderated by (depends on) satisfaction with the home.

Table 7

Linear Regression Mediation Model 2, Regression 3 (DV: Marital Satisfaction, IV: Equity, Negative Equity, Percent Equity (100%), Percent Equity (50%), Economic Pressure, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	23.857	.763		.001
Equity (sq rt. dollars)	-.002	.001	-.032	.133
Negative equity	.190	.647	.005	.770
Percent equity (100%)	.460	.255	.038	.071
Percent equity (50%)	.459	.240	.042	.056
Economic pressure	-.818	.082	-.170	.001
Race	-.430	.252	-.028	.088
Education	-.082	.036	-.042	.022
Age	.026	.008	.066	.002
Income	.002	.001	.021	.199

Note. $R^2 = .051$.

In order to address this hypothesis, key variables had to first be centered. Both housing burden and satisfaction with home had to be centered in order to circumvent both the problem of multicollinearity and the issue of evaluating one main effect at an extreme value of the other main effect (Howell, 2002). When examining housing burden, for instance, a regression analysis will assume that housing satisfaction is at a value of zero, and vice versa. Evaluating the main effect of housing burden with housing satisfaction at

the extreme value of zero creates problems with magnitude, tests of significance, and coefficients (Howell, 2002). By centering these variables, a score of zero would then actually represent a score of the mean, which addresses this potential problem. Centering these variables also addresses the issue of their interaction variables being highly collinear. To center them, the variable's mean score was subtracted from each raw score. The centered score for housing burden and the centered score for housing satisfaction were then multiplied by each other for an interaction variable.

Once these variables were computed, two regression analyses were run. The first of these used marital satisfaction as the dependent variable, and the centered housing burden, centered housing satisfaction, ownership status, race, age, education, and income as independent variables. The results from this regression (see Table 8) indicated significant relationships between marital satisfaction and centered housing burden, centered housing satisfaction, ownership status, and age. The higher the housing burden, the lower the marital satisfaction; and the higher the housing satisfaction, the higher the marital satisfaction. The only variables that were insignificant were race, income, and education.

The second regression analysis run to test the moderator model used marital satisfaction as the dependent variable, and added the interaction effect between centered housing burden and centered housing satisfaction to the list of previous independent variables. The results (see Table 9) indicated significant relationships between centered housing burden, centered housing satisfaction, owner status, and age. The *p* value for the interaction effect was .053. This value indicates the probability that this finding was due to chance is about 53 in 1000. Conventionally, a *p* value of .05 or less is required to

Table 8

Linear Regression Moderator Model 3, Regression 1 (DV: Marital Satisfaction; IV: Centered Housing Burden, Centered Housing Satisfaction, Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	21.589	.483		.001
C housing burden	-2.576	.512	-.074	.001
C housing satisfaction	1.177	.055	.302	.001
Owner	-1.115	.205	-.080	.001
Race	-.135	.202	-.009	.504
Education	.003	.031	.002	.922
Age	.026	.006	.068	.001
Income	.001	.001	-.008	.620

Note. R^2 = .108.

claim statistical significance; however, a value this close to .05 should be investigated further. Although perhaps not quite a statistically significant finding, this suggests that it is fairly probable the interaction between housing burden and housing satisfaction predicts marital satisfaction. In other words, housing burden may indeed predict marital satisfaction, depending on (or moderated by) housing satisfaction. As a couple experiences a higher housing burden, they are likely to be less satisfied in their marriage; however, if they are satisfied with their home, this effect is likely suppressed, and the subsequent decline in marital satisfaction decreases less steeply.

Table 9

Linear Regression Moderator Model 3, Regression 2 (DV: Marital Satisfaction; IV: Centered Housing Burden, Centered Housing Satisfaction, Interaction Between Housing Burden and Housing Satisfaction, Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	21.594	.483		.001
C housing burden	-2.607	.512	-.075	.001
C housing satisfaction	1.182	.055	.303	.001
Interaction	.735	.380	.027	.053
Owner	-1.119	.205	-.080	.001
Race	-.135	.202	-.009	.504
Education	.002	.031	.001	.949
Age	.027	.006	.070	.001
Income	.001	.001	-.009	.554

Note. $R^2 = .109$.

Hypothesis 4

Hypothesis 4: Higher amounts of home equity (both dollar amounts and percentages of home value) are associated with higher levels of marital satisfaction, mediated by couples' satisfaction with their financial situation.

In order to address this hypothesis, another linear regression analysis was performed. In this analysis, satisfaction with financial situation was used as the dependent variable, with equity, negative equity, percent equity (100% versus less than 50%), percent equity (more than 50% versus less than 50%), race, education, age, and

income as independent variables. The results (see Table 10) indicated a significant relationship between square rooted dollar amounts of equity and satisfaction with finances, with .002 as an unstandardized coefficient. As dollar amounts of equity increased, so did satisfaction with finances. Similarly, percentage of equity, measured as a dichotomy of 100% equity and less than 100% equity (the comparison category being less than 50% equity), also showed a statistically significant relationship with financial satisfaction. Race and age were also significantly related to satisfaction with finances.

The next regression required to test this mediation model mirrors the second regression from model 2 (see Table 6), which showed that equity as a square rooted dollar amount was not significantly related to marital satisfaction; however, the percentage of equity (100% versus less than 50%) was significant. This being the case, a third regression analysis was run to test model 2, with equity variables and financial satisfaction as independent variables, and marital satisfaction as the dependent variable.

The results of this analysis (see Table 11) indicated a partial mediation model between percent equity (100% versus less than 50%), financial satisfaction, and marital satisfaction. As financial satisfaction was added to the model, the *p* value for percent equity increased; however, it remained a significant predictor. Previously at .008, the *p* value of percent equity increased to .044. Other significant predictors of marital satisfaction in this analysis were equity in square rooted dollars, percent equity (more than 50% versus less than 50%), financial satisfaction, race, and age.

Hypothesis 5

Hypothesis 5: Homeowner status, as opposed to renter status, is associated with

Table 10

Linear Regression Mediation Model 4, Regression 1 (DV: Satisfaction with Finances; IV: Equity, Negative Equity, Percent Equity (100%), Percent Equity (50%), Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	3.399	.181		.001
Equity (sq rt. dollars)	.002	.001	.159	.001
Negative equity	-.137	.181	-.012	.450
Percent equity (100%)	.175	.070	.053	.012
Percent equity (50%)	-.059	.066	-.019	.369
Race	.171	.068	.040	.013
Education	.013	.010	.023	.183
Age	.015	.002	.135	.001
Income	.001	.001	.013	.411

Note. $R^2 = .075$.

higher levels of marital satisfaction.

To test this hypothesis, one regression analysis was performed. Setting marital satisfaction as the dependent variable, homeownership status was tested as the main independent variable, controlling for race, education, age, and income. The results from this analysis (see Table 12) show that owner status alone did not quite achieve the appropriate *p* value to claim a statistically significant relationship with marital satisfaction. However, the *p* value for owner status (.067) was fairly close to the .05 cutoff, indicating that the likelihood these findings were due to chance was

Table 11

Linear Regression Mediation Model 4, Regression 3 (DV: Marital Satisfaction; IV: Equity, Negative equity, Percent Equity (100%), Percent Equity (50%), Financial Satisfaction, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	16.852	.685		.001
Equity (sq rt. dollars)	-.002	.001	-.049	.021
Negative equity	.123	.644	.003	.848
Percent equity (100%)	.508	.252	.042	.044
Percent equity (50%)	.493	.236	.045	.037
Financial satisfaction	.947	.059	.264	.001
Race	-.493	.248	-.032	.047
Education	-.047	.035	-.024	.179
Age	.019	.008	.049	.019
Income	.001	.001	.019	.239

Note. $R^2 = .089$.

approximately 67 in 1,000. Although this finding is only marginally significant, combined with previous significant findings (see Tables 2, 3, 4, 8, and 9), it appears likely that homeownership status is associated with marital status—however, not in the expected direction. The relationship between owner status and marital satisfaction was negative. In other words, homeowners were less likely to be satisfied with their marriages than renters. This is contrary to hypothesis five which projected a positive

Table 12

Linear Regression Model 5, Regression 1 (DV: Marital Satisfaction; IV: Homeowner Status, Race, Education, Age, Income)

Independent variables	Beta	Std. error	Beta (standard)	Significance
Constant	20.699	.470		.001
Owner	-.372	.203	-.026	.067
Race	-.186	.198	-.013	.347
Education	-.039	.029	-.021	.183
Age	.049	.006	.123	.001
Income	-.001	.001	-.018	.248

Note. $R^2 = .018$.

relationship.

Because of this unexpected direction of the relationship, two more regression analyses were run in an attempt to investigate possible explanations. First, owner status was isolated as a sole independent variable, with marital satisfaction as the dependent variable. The results (see Table 13) indicated that owner status alone was not a significant predictor of marital satisfaction, with *p* equal to .731.

The second analysis included both owner status and age as independent variables. Because age was consistently significant across most previous findings, it was assumed that it played an important role in the variance of marital satisfaction. When age was added to the regression model, both owner status and age were statistically significant predictors of marital satisfaction (see Table 14). In other words, when age was accounted

Table 13

Extra Linear Regression 1 (DV: Marital Satisfaction; IV: Homeowner Status)

Independent variable	Beta	Std. error	Beta (standard)	Significance
Constant	21.716	.181		.001
Owner	-.069	.200	-.005	.731

Note. $R^2 = .000$.

for, owner status significantly predicted a negative relationship with marital satisfaction. These findings are indicative of a suppressor effect between owner status, age, and marital satisfaction. Suppression is a complex concept that essentially defines a suppressor variable as a predictor that has a zero correlation with the dependent variable (in this case, owner status and marital satisfaction) while paradoxically still contributing to the predictive validity (Horst, 1941). Owner status was unrelated to marital satisfaction until age was added to the model, which increased the predictive power of owner status. It is a common "symptom" of suppressor effects that a variable is not significant in the bivariate analysis, but becomes significant in a multivariate analysis. This will be addressed in the discussion section.

Summary of Findings

This chapter presented the results of descriptive and inferential analyses used to test relationships between three main independent variables (housing burden, equity, and homeownership status), two mediating variables (economic pressure and satisfaction with finances), one moderating variable (satisfaction with home), and one dependent variable (marital satisfaction). In total, three mediation models (hypotheses 1, 2, and 4), one

Table 14

Extra Linear Regression 2 (DV: Marital Satisfaction; IV: Homeowner Status, Age)

Independent variable	Beta	Std. error	Beta (standard)	Significance
Constant	19.602	.282		.001
Owner	-.517	.204	-.037	.011
Age	.055	.006	.141	.001

Note. $R^2 = .019$.

moderator model (hypothesis 3), and one direct relationship (hypothesis 5) were tested.

Model 1 (hypothesis 1) indicated a partial mediation model. The significance of the relationship between housing burden and marital satisfaction was reduced when economic pressure was added to the model, but not to a level of insignificance. When examined singly, housing burden was a significant predictor of economic pressure, as well as marital satisfaction. Hypothesis 1 was supported.

Model 2 (hypothesis 2) indicated a full mediation model between percent equity (100% versus less than 100%), economic pressure, and marital satisfaction, but no other equity variables. In the first regression, equity in dollars and equity (100%) were significant predictors of economic pressure; however, only percent equity (100%) was significantly related to marital satisfaction. When economic pressure was added to the model, percent equity (100%) became statistically insigificant as a predictor, indicating a full mediation model. Thus, equity as a percent was positively related to marital satisfaction, mediated by economic pressure. Equity, measured continuously in dollars, was not associated with marital satisfaction after accounting for demographic

characteristics, particularly age. Hypothesis 2 was supported by the analyses.

Model 3 (hypothesis 3) was extremely close in indicating the presence of a moderation model. Individually, both housing burden and housing satisfaction were statistically significant predictors of marital satisfaction. When the interaction of the two variables was added to the model, housing burden and housing satisfaction remained significant; however, the interaction itself was marginally significant at $p = .053$. This suggests a fairly high probability that the relationship between housing burden and marital satisfaction is moderated by (depends on) housing satisfaction. Hypothesis 3 was partially supported.

Model 4 (hypothesis 4) indicated a partial mediation model between equity (100%), financial satisfaction, and marital satisfaction. In the first regression, equity in dollars and percent equity (100%) were significant predictors of financial satisfaction; however, only percent equity (100%) significantly predicted marital satisfaction. When financial satisfaction was added as an independent variable, percent equity (100%) was reduced in its value as a predictor, but not quite to a level of statistical insignificance ($p = .044$). Hypothesis 4 was partially supported.

Finally, model 5 (hypothesis 5) indicated that homeownership status is a fairly likely significant predictor of marital satisfaction. Homeowner status was negatively related to marital satisfaction. It was suspected that a suppression effect was occurring between owner status, age, and marital satisfaction. Hypothesis 5 was not supported.

CHAPTER V

DISCUSSION

The multifaceted nature of homeownership continues to play an increasingly complex role within the context of a marriage, the specifics of which are largely unknown. Despite the importance that homeownership represents to couples, little empirical research has been performed to understand the relationship. This study attempted to fill the gap in the current knowledge base regarding the relationship between marital satisfaction and housing factors.

This study derived results consistent with both family stress theory and mental accounting theory. As Conger and colleagues (1999) discussed in their family stress model, feelings of economic pressure ultimately lead to a decline in marital quality. It was hypothesized that various factors of homeownership, mediated through this construct of economic pressure, would predict marital satisfaction. For instance, a high housing cost burden was expected to increase feelings of economic pressure, which would in turn lead to lower levels of marital satisfaction. The results of this study generally supported this idea. Spending a higher portion of income on housing (i.e., higher housing burden) predicted stronger feelings of economic pressure. A higher housing burden also predicted lower levels of marital satisfaction. Both of these outcomes were expected; however, a full mediation model was only partially supported by the analysis. When housing burden and economic pressure were examined together as predictors of marital satisfaction, both were significant rather than the presence of economic pressure eliminating housing burden as a strong predictor. A partial mediation model does not negate the support for

this hypothesis, but rather suggests that housing burden and economic pressure are not the only mechanisms affecting the complex construct of marital satisfaction. It may be beneficial to examine other possible factors that account for the negative association between housing burden and marital satisfaction in future research.

While the effects of housing burden only partially supported the family stress framework, certain equity variables supported it in full. As mentioned, owning a home can be a double-edge sword as both an asset and a liability. According to the analysis, if a couple feels burdened by spending a high proportion of their income on housing, this predicts lower levels of marital satisfaction. The high proportion of income they pay towards their home is likely construed as a stressor to their family system, and adversely affects their relationship. However, when the asset aspect of homeownership is accounted for, the opposite is true. As suspected, equity acts as a buffer against feelings of economic pressure. The analysis suggested that higher amounts of equity predicted less extreme feelings of economic pressure. Both a high dollar amount of equity, as well as paying off a home in full (100% equity) were associated with lower economic pressure. Having more of a home paid off predicts that couples will feel insulated from feelings that they will not be able to make ends meet.

When the direct relationship between equity and marital satisfaction was examined, only the percentage of equity was a significant predictor. In other words, having more dollars of equity in a home does not necessarily predict a couple will be more satisfied in their marriage; however, having a home completely paid off does. This may suggest that the relief of completely paying off a mortgage positively impacts the couples' relationship. Furthermore, the elimination of the monthly mortgage payment

frees up more money for non-shelter needs and wants. Having a more flexible budget is likely a desired scenario among couples, and may be contributing to the increased marital satisfaction. Concerning equity, economic pressure, and marital satisfaction all together, results indicated a full mediation model. Essentially, having their home entirely paid off (100% equity) predicts lower feelings of economic pressure, which leads to higher ratings of marital satisfaction. Just as Conger and colleagues (1999) suggested, though not specific to housing variables, equity buffered couples against feelings of economic pressure; and when those types of feelings are low, marital relationships are positively affected.

Depending on the magnitude of each of these main housing factors—housing burden and equity—a couple may be led to feel more or less economic pressure, and consequently feel more or less satisfied in their marriage. As expected, each of these variables pull feelings of economic pressure in opposite directions, illustrating the fact that homeownership is a unique financial aspect in a marriage. A couple's perception of their housing burden, as well as how they view their equity, are important in determining how the possible stress of homeownership affects their family system, as theorized by Hill (1949, 1958).

The results of this study were also aligned with the tenets of mental accounting theory, as described by Prelec and Loewenstein (1998). To reiterate, mental accounting suggests the idea that when purchases are made, people experience a "pain of paying," which can reduce the pleasure derived from consumption (Prelec & Loewenstein, 1998). The benefits, or pleasures, of owning a home can be undermined by the enormous debt, or payment, necessary to obtain that home. This theory incorporates the concept that

people find debt unpleasant—especially when the pleasure derived from whatever was financed is inadequate (Prelec & Loewenstein, 1998). Based on these principles, it was hypothesized that the relationship between housing burden and marital satisfaction depends on satisfaction with the home. In other words, whether the pain of a high housing burden negatively influences a marriage depends on how satisfied, or how pleasurable a couple deems their home.

The results of the analysis suggested that this may indeed be the case. By itself, a higher housing burden predicted lower levels of marital satisfaction. A higher housing burden may lead couples to feel the pain and unpleasantness of their mortgage payment more sharply, which leaves them more vulnerable in their marital satisfaction. A higher rating of housing satisfaction positively predicted marital satisfaction, suggesting that couples who were more satisfied with their homes were more likely to be satisfied with their marriages. When the interaction of both housing burden and housing satisfaction were regressed, it was found to be a nearly significant predictor of marital satisfaction ($p = .053$). Assuming that the interaction of these two variables is indeed a predictor, this would suggest that the relationship between housing burden and marital satisfaction does depend on a couple's satisfaction with their home. If a couple is less satisfied with their home, the weight of a large mortgage payment is likely perceived as painful, and their marriage is negatively affected. Conversely, a couple who is highly satisfied with their home do not perceive their mortgage to be as potent of a pain, and their marital satisfaction is left relatively unaffected in this regard. When the pleasure derived from the home is inadequate, couples are left dissatisfied which adversely affects their relationships.

It was further hypothesized that equity may buffer a couple from the unpleasantness of debt, leading to high satisfaction with their financial situation, which would increase marital satisfaction. Equity is a major component in a couple's appraisal of the costs of payment versus the benefits of homeownership. It was assumed that a couple with more equity in their home would feel buffered from the unpleasantness of debt, allowing them to feel more satisfaction with their financial situation. The results from the analysis indicated that this was the case. Both equity measured in dollars as well as equity as a percentage of home value positively and significantly predicted a couple's satisfaction with their finances. The more equity a couple had in their home, the better they felt about their financial situation.

Reaching 100% equity also predicted higher levels of marital satisfaction. In this case, having a home fully paid off (100% equity) predicted higher levels of marital satisfaction. In cases of 100% equity, the pain of mortgage debt was eliminated, leaving perceptions of homeownership benefits to be unhindered by the unpleasantness of debt. This situation predicted higher satisfaction with both finances and marriages.

When financial satisfaction and all equity variables were examined in regards to their relationship with marital satisfaction, results indicated another partial mediation model between percent equity (100%), financial satisfaction, and marital satisfaction. Both financial satisfaction and percent equity were significant predictors of marital satisfaction, suggesting that there is not a strong, direct path from equity to financial satisfaction, and from financial satisfaction to marital satisfaction. Although the mediation model was only partially supported by the analysis, results indicated that equity in dollars, percent of equity (100%), percent of equity (50%), and satisfaction with

finances were significant predictors of marital satisfaction. There may not be a direct, mediating path between these variables, but the analysis suggested that they play a significant role in determining levels of marital satisfaction.

After controlling for basic demographics, the final analysis revealed that homeownership status by itself was not a significant predictor of marital satisfaction. This suggests that there is more to consider than homeownership status alone in determining its effects on marital satisfaction. Although not a significant predictor of marital satisfaction by itself, homeowner status became significant as age was added to the regression model. When age was included, homeownership became a negative predictor of marital satisfaction. In other words, with age held constant, homeowners were less satisfied in their marriages than renters.

A similar case emerged when results from Tables 3 and 8 were more closely examined. In Table 3, owner status negatively predicted marital satisfaction with an unstandardized coeffieicnt of -.187 (p = .001). As housing satisfaction was added to the model, the unstandardized coefficient for owner status was considerably magnified, with a value of -1.115 (p = .001)—almost 6 times the size. When age and housing satisfaction were held constant in the regression analysis, owner status became a negative predictor, suggesting that both age and housing satisfaction have a positive effect on marital satisfaction.

An explanation for this relationship requires some degree of speculation. Perhaps the negative relationship between owner status and marital satisfaction is representative of an overall feeling of debt and burden among couples, which outweighs the positive perceptions of homeownership (e.g., housing satisfaction). It may be that ongoing

maintenance costs, property taxes, and severe consequences of default equate to more stress among homeowner couples, leading to a decline in marital satisfaction after accounting for how satisfied couples are with their homes. Particularly when age and financial satisfaction are accounted for, this scenario emerges. It may be that older couples who are satisfied with their finances don't feel those negative effects as strongly, as their marital satisfaction is compensated by non-housing related factors.

Recommendations for Future Research

It is clear that more empirical research is needed to address one of the most important financial aspects within the context of marriage—homeownership. Although there is a fair amount of existing research regarding the relationship between marriage, debts, and assets, there is very little that specifically examines homeownership as both a debt and an asset. Because homeownership plays such a critical role in many couples' lives, it will be important to further expound on the complexities involved. Uncovering, and delving deeply into more factors that account for the variance in marital satisfaction can ultimately improve both couple well-being, as well as financial and housing situations.

One suggestion for future research is to use a more recent data set. While the NSFH is a sophisticated tool, and presently the only set of data that could adequately address the hypotheses of this study, it would be helpful to obtain more recent data. The market and mortgage products themselves are constantly in flux, so a sample of married couples from today's market climate would be helpful in better understanding the effects of housing factors on marital relationships.

Future research may also benefit from the exploration of other housing-related factors, such as the effects of mortgage default or foreclosure on marital relationships. Understanding the processes couples go through under the stress of default or foreclosure would be helpful in devising coping mechanisms to improve couple well-being. It may also be useful to use data longitudinally to see longer-term trends, as well as to include other family factors. For instance, the presence of children may seriously affect the couple-housing dynamic.

Limitations

One limitation of this study is the age of the data set. Collected in 1992, one may question whether the participants are representative of today's couples and whether the homeownership factors mirror today's market. The NSFH is a nationally-representative, longitudinal data set; it has reliable measures of relationship quality and financial variables. Given the hypotheses of this study, NSFH is the only data set that could adequately address them. It was worth using older data to be able to address the important concepts hypothesized. Despite the justification in using this data set, it would be far more useful for future research to examine similar relationships with newer data.

Conclusion

In spite of its limitations, this study represents an essential step towards understanding vital factors associated with two important fields—family relations and consumer sciences. Primarily interested in improving the well-being of individuals and families, these fields would benefit from research that combines the most central aspects

from each. As financial factors and marital relationships are so integrally intertwined with one another, it is important that research studies take both areas into consideration when seeking to ultimately improve well-being. This study attempted to do this, and the results indicate that more work needs to be done.

The impact of homeownership is a very complex concept, and when examined together with marital satisfaction, that complexity is further heightened. There is no straightforward answer as to what makes couples more satisfied in their marriages. Similarly, it is difficult to clearly predict the effect that homeownership will have on marriages. The results from this study indicated that equity and housing burden affected marital satisfaction in opposite directions, mediated by feelings of economic pressure, and satisfaction with home and finances. However, those results also suggested that other mechanisms were in effect. It is important that future research continue to fill in the gaps of knowledge in this area, and better understand these unknown mechanisms.

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