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by

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ABSTRACT

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The demand-withdraw interaction pattern is a common, deleterious pattern in which one spouse blames or pressures while the other spouse avoids or withdraws (Christensen, 1988). Studies consistently show that: 1) there tends to be gender differentiation in the interaction roles, with women demanding and men withdrawing, and 2) demand-withdraw behaviors are associated with marital dissatisfaction. The existing observational research on marital interactions, however, has been overwhelmingly conducted with relatively young couples and does not take into account other known predictors of marital dissatisfaction. The present study examined demand-withdraw behaviors longitudinally in a sample of middle-aged and older couples. Later life stages may be associated with changes in emotion-related behaviors (e.g., Carstensen, 1991) and in gender roles (e.g., Gutmann, 1987). Studying demand-withdraw behaviors over time in middle-aged and older couples enables a determination of whether the manifestations of this set of behaviors, and its negative association with marital satisfaction, change during the later stages of development. This study further evaluated the effect of demand-withdraw on marital satisfaction in relation to other factors known to be negatively associated with this important outcome (e.g., physiological arousal, self-reported negative affect, and negative emotion behaviors during conflict).

A sample of 126 married couples (63 middle-aged, 63 older) were observed at three time points across a 13-year span as they engaged in a 15-minute conversation about an area of relationship conflict. Conversations were videotaped and trained raters used an observational coding system to quantify each partner's demand and withdraw behaviors. During or shortly following the conflict conversations, measures of physiological arousal, self-reported negative affect, and emotion behavior were also collected. The couples also completed self-report measures of marital satisfaction at each of the three time points of observational data collection, as well as at two subsequent time points.

Results showed that demand-withdraw behaviors occur during conflict in both middle-age and older couples at overall comparable rates. Combining this finding with previous work indicates that this pattern is found throughout the life course. Importantly, the specific pattern of behaviors changes with age. There appears to be a marked increase in one type of withdraw behavior, avoidance, over time. Moreover, contrary to theories proposed by Gutmann and others that gender differences diminish in later life, gender differentiation appears to become greater over time with wives in the demand role and husbands in the withdrawing role.

Results further demonstrated that the relationship between demand-withdraw behaviors and marital dissatisfaction remains the same across the lifespan. That is, for both middle-aged and older couples, demand-withdraw behaviors are negatively associated with concurrent levels of marital satisfaction. Furthermore, these behaviors show significant interactions with other factors known to be associated with lower levels of marital satisfaction (e.g., physiological arousal, self-reported negative affect, and negative emotion behaviors). The general pattern was that demand-withdraw behaviors, while deleterious on their own accord, are particularly pernicious when manifest in the context of other factors associated with marital dissatisfaction. When examining the longitudinal effect of demand-withdraw behaviors, however, results indicated that after controlling for initial levels of marital satisfaction, these behaviors were not strong predictors of the trajectory of change in marital satisfaction over time.

The findings are discussed in terms of socioemotional changes couples undergo as they move from middle-age into late life. This study offers evidence not only about changes in demand-withdraw behaviors themselves but also as to how marital processes and gender roles may change over the life course. Future work will be valuable in further elucidating changes in the nature of demand-withdraw behaviors and in the consequence of this interaction pattern for marital satisfaction at different life stages.

INTRODUCTION

Intimate relationships are an important part of our lives. They can be a source of companionship, pleasure, and love. For many people in the Western culture, a close personal relationship with a member of the opposite sex often results in marriage. Unfortunately, not all of these unions are destined to be successful. According to Census Bureau reports, over half of first marriages in the United States end in divorce (Krieder & Fields, 2002). Researchers investigating the factors that lead to such negative outcomes have found that one of the most prominent sources of marital discord is poor or absent communication (e.g. Noller, Feeney, Bonnell, & Callan, 1994). Further, marital therapists identify poor communication as not only the most detrimental of presenting complaints, but also the most frequently experienced problem of couples in marital therapy (Geiss & O'Leary, 1981).

One key area of communication relates to how couples deal with the inevitable conflicts that arise as they negotiate life together and confront relationship issues (Noller & Feeney, 1998). Managing conflict is one of the central tasks of maintaining a marriage, and it has been suggested that the manner in which couples handle differences when they emerge is among the most important, if not *the* most important, determinants of marital satisfaction (Gottman, 1994; Gottman & Levenson, 1988). To this end, research has shown that dysfunctional conflict resolution behaviors such as coercion, manipulation, and avoidance are likely to negatively impact relationships (Fitzpatrick & Winke, 1979; Karney & Bradbury, 1997; Noller & White, 1990).

A great deal of attention has been given to one particularly destructive form of communication, the demand-withdraw interaction pattern, which is common in relationships during conflict and is highly pernicious (e.g. Eldridge & Christensen, 2002). The demand-withdraw interaction pattern is characterized by one partner trying to discuss problems, criticizing or blaming their partner for problems, and/or requesting or demanding change, while the other partner tries to avoid discussion of the problem, defends against criticism, and/or withdraws from the interaction (e.g. Christensen, 1988; Sagrestano, Heavey, & Christensen, 1999). Heavey, Layne, and Christensen (1993) described this interaction pattern as one of the central, most intractable, and destructive patterns of marital interaction.

Early research on this pattern came from Napier (1978) who referred to this type of interaction as the rejection-intrusion pattern. He saw this pattern as present in a great many marriages, but more significantly noted that in couples who divorce, "its gradual evolution over time may constitute the major force in the demise of their relationship" (p. 5). Later researchers concurred and launched studies to examine the causes and consequences of the demand/withdraw pattern. Christensen and his associates were among the forerunners in this area, and initial self-report research demonstrated that: a) couples can agree on the presence of this pattern in their relationship; b) the frequency of reported demand-withdraw behavior is highly associated with marital dissatisfaction, and c) women tend to assume the demanding role, whereas men tend to assume the withdrawing role (Heavey et al., 1993).

Since Christensen's work in the early 1990's, a great many studies have been conducted to examine the patterns and consequences of demand-withdraw behaviors in relationships. Christensen's initial cross-sectional conclusions regarding a negative association with marital satisfaction and gender role differentiation (i.e. wives demanding and husbands withdrawing) have been replicated a number of times. Several of these studies went beyond self-report to measure demand-withdraw behaviors using trained coders (e.g., Christensen & Heavey, 1993;

Eldridge, Sevier, Jones, Atkins, & Christensen, 2007; Vogel & Karney, 2002). This was important because, as Gottman and Notarius (2002) note, observational research not only contributes depth and richness to the study of marriages, but also adds predictive power and theoretical clarity. In addition, other studies incorporated longitudinal research designs (e.g., Caughlin, 2002; Heavey, Christensen, & Malamuth, 1995; Kurdek, 1995), which are superior to correlational designs in examining causal mechanisms.

Despite all this work examining characteristics and repercussions of the demand-withdraw pattern, there remain some important gaps in the literature. One notable area pertains to the lack of research on the demand-withdraw behaviors in older couples who have already had a relative amount of "success" in remaining together in a long-term marriage[1]. In their review of marital research in the 20th century, Gottman and Notarius noted that the existing observational research on marital interactions has been overwhelmingly conducted with relatively young couples (Gottman & Notarius, 2002). Further, that research has primarily focused on characterizing marriages that dissolve versus marriages that endure (e.g. Gottman, Coan, Carrere, & Swanson, 1998; Gottman & Levenson, 1992). While it is understandable that researchers have focused on marriages in early stages of life in an effort to identify and intervene in the processes that may lead to marital instability and dissolution, it is also important to remember that individuals and relationships continue to change across the lifespan (Carstensen, Mayr, Pasupathi, & Nesselroade, 2000; Mares & Fitzpatrick, 1995). These changes may affect the way that behaviors such as demand-withdraw are manifest, as well as the way in which they impact the marital relationship.

Demand-Withdraw and Age

Research suggests that marriages in middle and late life may differ in many important aspects from marriages in early adulthood, as well as from each other. For example, the average age of newlyweds is approximately 26 years old (U.S. Census Bureau, 2003). Partners at this stage are most likely to idealize each other, and issues concerning the development of intimacy and attachment are particularly important (Murray, Holmes, & Griffin, 1996; Pasch & Bradbury, 1998). By mid-life, (defined here as 40-50), spouses are often dealing with tasks such as raising a family, facing increased responsibility in the workplace, and are coping with greater role strain than at any other life stage (Burr, 1972). By the time spouses reach later life stages (defined here as age 60 or over), many of these responsibilities have subsided as the children have left home and individuals have retired from work (e.g. Moen, Kim, & Hofmeister, 2001; Orbuch, House, Mero, & Webster, 1996). New difficulties can arise, however, due to changes in living arrangements, reductions in income, and/or declining health and vitality (e.g. Barnes & Parry, 2004; Burman & Margolin, 1992).

[1] By definition, long-term marriages (i.e. 20+ years of marriage) involve middle-aged and older couples. Importantly, when considering the development processes involved in long-term marriages, it is critical to distinguish between the affect of age versus marital duration. While these variables are often correlated, they are not always linked (as in the case of a 60-year old who just married for the first time) and they conceptually indicate distinctive life course processes. A focus on age presumes developmental change that comes with increasing personal experience or maturation. In contrast, a focus on marital duration presumes that change occurs as a result of increasing time spent in the married status. A study by Umberson and colleagues (Umberson, Williams, Powers, Chen, & Campbell, 2005) comparing the effect of age versus marital duration on marital quality indicated that age is more strongly associated with marital quality than is marital duration. Therefore, the current study will be focusing on changes in marital functioning associated with aging, with the understanding that the differences we are examining may be tied to differences in the duration of marriage as well.

In addition to these life-task transitions, research and theories on life course development suggest that important emotional and relational changes occur as spouses age. For example, Levenson, Carstensen, and Gottman (1993) found that older couples reported less disagreement in several areas than middle-aged couples (money, religion, recreation, and children) and reported greater pleasure in talking about several areas (talking about children or grandchildren, things done together recently, dreams, and vacations). Similarly, a self-report study by Gilford and Bengston (1979) indicated that positive interaction (e.g., exchanging ideas, laughing together, calmly discussing things) followed a curvilinear path (highest early, lowest in middle-aged couples, and increasing in older couples), whereas negative sentiment (e.g., disagreements, anger, criticism) decreased linearly with age. Taken together, these studies suggest that older marriages may have a reduced potential for conflict and a greater potential for pleasure. These findings are in line with the socioemotional selectivity theory (SST; Carstensen, 1991; 2000), which posits that the motivation to seek emotionally meaningful experience and to regulate emotion increases with age, as time in life becomes more limited. SST does not imply that disagreements do not exist; rather, in later phases of life, these disagreements may not result in relationship conflict because heated arguments may be viewed as relatively unimportant or serving little purpose (Carstensen, Graff, Levenson, & Gottman, 1996). Theoretically, then, given shifts toward less role strain, fewer areas of disagreement, less negative sentiment, and a greater orientation toward meaningful experiences, it would seem that demand and withdraw behaviors would decrease from middle-age to old age as couples shift toward less conflict.

Surprisingly few studies have evaluated whether such decreases in demand-withdraw behavior actually occur. Importantly, research on age-related processes can be approached in two ways. The first approach uses cross-sectional designs wherein the variable of interest is examined in a younger versus older cohort of subjects, and conclusions are drawn from the observed differences. In one of the only known cross-sectional studies of communication behaviors and aging, Henry et al. (2007) observed behaviors during a discussion of an area of disagreement and during a collaborative problem solving task in middle-aged (40-50 years old) and older couples (60-70 years old). They found no differences between the two age groups in hostile behaviors (defined as ignoring, neglecting, walling off, attaching, blaming, which are similar to demand-withdraw behaviors). The second approach uses longitudinal designs to examine patterns of change within the variable of interest over time. Studies of demand-withdraw behaviors from a longitudinal perspective are very rare, but those that have seem to point toward stability in the behaviors over time. Noller and colleagues (1994) observed no significant changes over time (immediately pre-wedding to two years post-wedding) in the use of negative conflict strategies (defined as coercion, manipulation, and avoidance, which are similar to demand-withdraw behaviors). Kurdek (2005) conducted a self-report study of conflict resolution styles (including conflict engagement and withdrawal, which are similar to demand and withdraw behaviors, respectively) in couples over a two-year period. He found that approximately 68.5% of spouses showed no change in conflict engagement (as opposed to 8% who decreased and 23.5% who increased) and 66% showed no change in withdrawal behaviors (as opposed to 14% who decreased and 20% who increased).

Taken together, the findings of these cross-sectional and longitudinal studies of demand-withdraw behaviors do not seem to support the possible decline in demand-withdraw that would predicted by other studies of aging processes. Some of this incongruity, however, may result from methodological issues. Cross-sectional studies are not optimal for addressing questions of change over time, and the two existing longitudinal studies both studied very short time periods

and did not include couples in mid- to late-life. Thus, the question of how demand-withdraw behaviors change in later life remains unanswered.

Demand-Withdraw and Gender Differences

Both the clinical and research literatures have consistently noted gender differentiation in the roles spouses adopt during demand-withdraw interactions. That is, wives typically occupy the demanding role while husbands occupy the withdrawing role. Christensen and Heavey (1993) noted that across several investigations, wives tend to demand and husbands tend to withdraw in approximately 60 percent of couples; the reverse is true for 30 percent of couples, and in the remaining ten percent, wives and husbands demand and withdraw equally. Other studies have found this pattern of gender differentiation in distressed married couples (e.g. Christensen, 1988; Markman, Silvern, Clements, & Kraft-Hanak, 1993), non-distressed married couples (Christensen & Shenk, 1991), couples requesting marital therapy and divorcing couples (Christensen & Shenk, 1991), dating couples (Vogel, Wester, & Heesacker, 1999), newlywed couples (Vogel & Karney, 2002), and couples across different cultures (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006).

Different theories have been proposed for why men and women tend to occupy different demand-withdraw roles. Some researchers (Gottman & Levenson, 1988; Rubin, 1983; Tannen, 1990) have pointed to differences between the sexes arising from factors such as biological distinctions, deep-rooted socialization influences, or individual characteristics associated with gender. From this individual differences perspective, men and women act differently in relationships because of trait-like enduring gender differences which predispose women toward demanding behaviors and men toward withdrawing behaviors. Conversely, other researchers have focused on power differences between spouses arising from the differential distribution of males and females into high-power and low-power roles (Eagly, 1987; Eagly, Wood, & Diekman, 2000). Broadly speaking, in traditional heterosexual marriages husbands tend to have greater power than wives in terms of control over resources (Scanzoni, 1979), greater influence in decision making (Beach & Tesser, 1993), and the amount of benefit derived from the marriage (Jacobson, 1983). Therefore, from this power differences perspective, men withdraw because they have a great deal to lose and nothing to gain by discussing relationship problems; women, in contrast, demand because they may need to use confrontation to improve their position (Peplau & Gordon, 1997).

Studies testing these two theoretical perspectives (i.e., individual differences vs. power differences) have shown mixed findings. Some researchers have found that individual difference factors such as Big Five personality dimensions or degree of femininity (Caughlin & Vangelisti, 2000; Walczynski, 1997) influence demand-withdraw behaviors. Other studies have found that power (particularly who desires more change in his or her partner; Holtzworth-Munroe, Smutzler, & Stuart, 1998; Klinetob & Smith, 1996) determines demand-withdraw roles. For example, a study by Holley and colleagues (2010) looked at demand-withdraw behaviors in gay, lesbian, and heterosexual couples and found that all couples showed equivalent levels of demand-withdraw behaviors. Further, which partner desired more change in the discussion topic predicted demand and withdraw roles regardless of the sexual composition of the couple. Finally, some studies suggest that a combination of individual differences and power differences predict demand-withdraw roles (Christensen & Heavey, 1990; Heavey et al., 1993).

Whatever the source of the differences, men and women clearly tend to occupy different roles with regard to demand-withdraw. A question that has yet to be addressed is what happens

to these differences in later life. It may be that gender differences in demand-withdraw behaviors increase over the course of life. Because demanding and withdrawing are each triggers for and responses to one another, small gender differences in demand-withdraw behaviors may grow larger as partners become more entrenched in their respective roles over time. In a cross-sectional study examining this phenomenon, Eldridge et al. (2007) found that distressed couples in longer marriages were locked into gender-stereotyped demand-withdraw roles across a range of discussion topics, whereas partners in shorter marriages (regardless of distress level) demonstrated flexibility in demand-withdraw behaviors based on the topic being discussed. While this study was not explicitly examining the effect of age but rather of marital duration, it does suggest that couples in later stages of life (which is necessarily true of couples in marriages of long duration) may show greater gender differences in demand-withdraw than those in earlier life stages.

In contrast to these findings showing an increase in gender differences in demand-withdraw behaviors, other theories suggest that gender differences in demand-withdraw should diminish over time. Lifespan sex role developmentalists tend to view gender roles as flexible, with individuals adapting to address the challenges at each particular stage of development. For example, Gutmann (1987) suggested that older men and women reverse roles after child rearing is completed, with men becoming more "feminine" (e.g. empathic and affiliative) and women more "masculine" (e.g. assertive and independent) in their stance toward life. Further, in the older age range (defined here as ages 55-95), "…each sex becomes to some degree what the other used to be, and there is ushered in the normal unisex of later life" (Gutmann, 1997, p. 203). These reversals are thought to represent adaptive behaviors for the individuals. In their review of gender roles in later life, Simmit & Shifren (2001) concluded that gender role development in old age appears to involve transforming and even transcending such roles to continue the construction of identity, meaning, and community for the aging person. Therefore, from this theoretical perspective, men and women later in life will be less likely to adhere to stereotypically gender-linked behaviors such as demanding and withdrawing.

Examining gender differences in demand-withdraw behaviors in couples in later life provides clues not only as to possible changes in demand-withdraw behaviors themselves but also provides information as to how spouse's gender-linked behaviors may or may not change over the life course. Given that past research and theory points to two quite different patterns of gender difference in older couples (i.e. increasing versus decreasing), it is important to test which of these patterns will emerge.

Demand-Withdraw and Marital Satisfaction

A great deal of marital research is devoted to the question of what predicts good versus poor marital outcomes. Understanding the factors that underlie negative outcomes is crucial because marital dissatisfaction has been shown to be negatively associated with mental and physical illness (e.g. Levenson et al., 1993; Robles & Kiecolt-Glaser, 2003). The demand-withdraw pattern is thought to be particularly destructive to relationships as it is a self-perpetuating and polarizing pattern of communication. For example, Christensen and colleagues focused their early research on discrepancies in partner's desire for closeness versus independence. One partner may seek greater closeness by pursuing the other, demanding more from the other, and/or complaining that the other does not do enough; the partner, on the other hand, seeks greater distance by withdrawal, retreat, defensiveness, or passive inaction (Christensen & Shenk, 1991). The negative behaviors of one partner exacerbate the response of

the other, and in this way partners become entrenched in a cycle of maladaptive communication.

Intuitively then, it would seem that at any stage of life, demand-withdraw would be associated with marital dissatisfaction, and further, that this association may grow stronger over time as couples that engage in the pattern become more polarized. But while multiple methodologies (e.g., self-report and observer measures), investigators, and samples have consistently demonstrated that demand-withdraw is associated with concurrent relationship dissatisfaction (e.g. Christensen, 1988; Christensen et al., 2006; Eldridge et al., 2007; Heavey et al., 1993; Kurdek, 1995; Noller et al., 1994; Vogel et al., 1999), few of these studies have examined this relationship in couples later in life, and still fewer have looked at how these variables interrelate over time. Some research indicates that the relationship between demand-withdraw behaviors and marital dissatisfaction might not be as strong for older couples or as clear a predictor of later levels of dissatisfaction as one would expect.

For example, research on the developmental course of marital satisfaction suggests it follows a curvilinear trend, starting out high at the beginning of marriage, rapidly declining as families entered the childrearing years, bottoming out when the children reached the adolescent years, then steadily climbing back up in the post-parental years (Glenn, 1990)[2]. This pattern is in accordance with the aforementioned findings of Levenson et al. (1993) and Gilford and Bengston (1979), as well the socioemotional selectivity theory (Carstensen, 1991; Carstensen et al., 1996), which indicate that marriages tend to show a reduced potential for conflict and are increasingly positive as couples move into later life stages. Therefore, marital dissatisfaction later in life may be less closely related to conflictual behaviors like demand-withdraw. One of the only studies that directly examined demand-withdraw and marital dissatisfaction in older couples (mean age = 66.75 years) by Heffner et al. (2006) supported this idea. The researchers did not find a correlation between self-reported or observed wife-demand/husband-withdraw and marital dissatisfaction (with the caveat that they studied a small sample of couples (n = 32) who were generally martially satisfied).

Additionally complicating the picture is the fact that longitudinal studies of demand-withdraw and marital dissatisfaction have shown inconsistent findings. While some studies point to the generally expected notion that demand-withdraw behaviors lead to decreases in satisfaction (Kurdek, 1995; Weiss & Heyman, 1997), other studies found no effects, mixed findings, or even showed demand-withdraw behaviors predicting increases in satisfaction. For example, Gottman & Krokoff (1989) looked at 25 middle-aged couples over three years and found that conflict engagement (defined as disagreement and criticism; similar to the conceptualization of demand behaviors) was associated with concurrent dissatisfaction but predicted increases in later satisfaction, while withdrawal (defined as not responding, not tracking, turning off, and incoherent talk) seemed to be associated with concurrent distress and predicted the deterioration of marital satisfaction over time. Heavey, Layne, and Christensen (1993) examined a sample of 29 married couples over a one year period and found that wife-demand/husband-withdraw predicted decline or no change in marital satisfaction for husbands and wives, but husband-demand/wife-withdraw predicted increases in marital satisfaction. A subsequent study by Heavey, Christensen, and Malamuth (1995) looked at demand-withdraw and change in satisfaction over 2.5 years in a sample of 48 young married and dating couples and found that withdrawal by men and woman-demand/man-withdraw during discussions of a topic in which the woman wanted change predicted decline in the women's relationship satisfaction,

[2] Notably, other research has suggested that marital satisfaction follows a path of linear decline (e.g. (VanLaningham, Johnson, & Amato, 2001).

but they did not find variables that predicted changes in men's satisfaction. Finally, Caughlin (2002) examined a sample of 46 married couples over one year and found that both wife-demand/husband-withdraw and husband-demand/wife-withdraw were associated with increases in wives' satisfaction (but no changes in husband's satisfaction).

With so many contradictory or mixed findings, it seems difficult to conclude exactly how demand-withdraw behaviors impact marital satisfaction for couples over time. It is possible, however, that these disparate findings stem from important conceptual and methodological limitations found in much of the existing longitudinal research (e.g., Karney & Bradbury, 1995). Specifically, each of the studies mentioned above suffered from at least one of the following important limitations that are common in longitudinal studies: (a) only looked at two time periods, (b) only included one partner from the couple, (c) were conducted with a small sample size, (d) included a sample with limited variability in marital satisfaction, or (e) were over too short a timeframe to allow definitive conclusions to be reached. Further, because most of these studies only assessed demand-withdraw at one time point, they were unable to assess how changes in demand-withdraw might be related to changes in marital satisfaction. Finally, the earlier studies tended to fail to control for initial levels of marital satisfaction, which means that the estimated effects were simple associations across time rather than predictions of change over time. Studies that account for these factors, as well as include older couples, are necessary to determine if the relationship between demand-withdraw and marital satisfaction persists into later stages of life.

Demand-Withdraw vs. Other Predictors of Marital Satisfaction

Demand-withdraw behaviors are only one of many aspects of interpersonal communication that have been linked to marital dissatisfaction. In the sample of middle-aged and older couples that will be examined in the present study, Levenson and colleagues identified several elements of conflict discussions that were associated with marital dissatisfaction. Specifically, Levenson, Carstensen, and Gottman (1994) examined self-reported affect during conflict discussions and found that interactions that were rated by the couples as being less positive, more negative, and producing more negative affect reciprocity were characteristic of dissatisfied marriages. In a second study of the same couples, the researchers looked at observer-rated emotion behavior, such as anger, sadness, and contempt, shown by the couples during conflict interactions (Carstensen, Gottman, & Levenson, 1995). They found that spouses in dissatisfied marriages showed less positive emotion behavior, more negative emotion behaviors, and demonstrated greater negative continuance sequences (negative affect by one spouse followed by negative affect by the other spouse). Finally, Levenson and Gottman have found that a high levels of physiological arousal during marital interaction strongly predicted concurrent marital dissatisfaction (1983) and also predicted future declines in marital satisfaction (1985). While the researchers did not explicitly test this relationship in the sample of middle-aged and older couples, studies by Kiecolt-Glaser and colleagues suggest that the association between physiological arousal and marital dissatisfaction remains consistent over time. Specifically, these researchers found a similar association between physiological responding and marital dissatisfaction for a sample of older couples (aged 55-75) as for a sample of newlywed couples (Kiecolt-Glaser et al., 1997; Kiecolt-Glaser et al., 1996).

With self-reported affect, emotion behaviors, and physiological arousal established as correlates of marital dissatisfaction in middle-aged and older couples, an important question then becomes: Do demand-withdraw behaviors contribute to marital dissatisfaction above and

beyond these other predictors? Studies that have examined more than one of these known predictors of marital dissatisfaction in relation to one another are rare, but findings suggest that these factors may exert unique influences on the outcome. For example, Johnson, Bradbury, and colleagues (2005) looked at 172 newlywed couples over four years. The spouses engaged in a marital discussion task at the initial assessment. Conversations were coded for both positive and negative communication behaviors (e.g. agreeing or demanding) and emotion behaviors (e.g. anger or humor). Results showed that communication behaviors and emotion behaviors accounted for unique variance in both the initial levels and rates of change in marital satisfaction. Interestingly, they found a strong relationship between positive emotion and negative communication such that low levels of positive emotion and high levels of negative communication were associated with particularly sharp decline in marital satisfaction, whereas high levels of positive emotion appeared to buffer the effect of high levels of negative communication.

This study was important in demonstrating that communication and emotion behaviors exert independent effects on marital satisfaction, as well as interact to either exacerbate or reduce the degree of change over time. No such studies have been conducted with couples later in life, however, and no studies have simultaneously examined communication and emotion behaviors along with physiological arousal and self-reported affect. Looking at how demand-withdraw behaviors affect both current and future marital satisfaction in relation to these variables will offer greater understanding of the degree to which these are separable constructs that uniquely contribute to marital satisfaction outcomes in middle-aged and older couples.

Overview of the Present Study and Hypotheses

The present study will advance the research on demand-withdraw behaviors in several important ways. First, it examines demand-withdraw behaviors in middle-aged and older couples, a population that is generally underrepresented in the marital literature. Second, it incorporates a design that is not hindered by some of the methodological issues found in previous longitudinal studies of demand-withdraw behaviors or inherent in cross-sectional designs. Specifically, the present study uses a behavioral measure of demand-withdraw, assesses both spouses' behavior at three time points over the course of approximately 13 years (and marital satisfaction at five time points over the course of approximately 20 years), includes a relatively large sample of both satisfied and dissatisfied couples, and utilizes growth curve modeling to optimally address questions regarding the prediction of change over time (Bradbury, Cohan, & Karney, 1998). Finally, it is one of the only studies to simultaneously examine demand-withdraw behaviors in relation to other known predictors of marital dissatisfaction, including self-reported affect, emotion behaviors (e.g., anger, sadness), and physiological arousal. This will enable an examination of the relative contribution of each to concurrent levels of and changes in marital satisfaction.

Overview. Demand-withdraw behaviors, and the relationship demand-withdraw behaviors, marital satisfaction, and other predictors of marital satisfaction were examined in a longitudinal sample of middle-aged (ages 40-50 at Time 1) and older (ages 60-70 at Time 1) couples in long-term marriages. Couples participated in laboratory visits on three occasions over a 13-year period (1989 [Time 1], 1995 [Time 2], 2001 [Time 3]) for which demand-withdraw behaviors were assessed. Marital satisfaction was additionally assessed at two more time points via questionnaire (2007 [Time 4] and 2009 [Time 5]. During the laboratory visits, each couple engaged in discussions of an area of relationship conflict. Videotaped recordings were made of

their conversations and physiological and subjective responses were recorded moment-by-moment during each conversation. At each of the five time points, each spouse completed a packet of questionnaires that assessed demographic variables and couples' level of marital satisfaction.

Hypotheses. The study has four specific aims that will be addressed from both concurrent and longitudinal perspectives within a sample of middle-aged and older couples. Below is a summary of the four aims and the specific hypotheses that will be tested. As described in detail in the following section, the analyses will be conducted by examining intercept scores, representing a variable's initial value at the beginning of the study, and slope scores, representing the trajectory of change over time. Thus, the hypotheses will be framed in terms of initial values (i.e., intercept scores) and trajectories of change (e.g., slope scores).

Aim 1: To examine age-related differences in demand-withdraw behaviors.

Hypothesis 1a: Middle-aged couples will demonstrate greater initial amounts of demand-withdraw behaviors than will older couples.
Hypothesis 1b*:* For the full sample of couples, demand-withdraw behaviors will decrease over time.
Hypothesis 1c: The trajectory of change in demand-withdraw behaviors will be significantly more negative for the middle-aged couples than for the older couples.

Rationale: While the demand-withdraw pattern is considered to be a destructive and self-perpetuating pattern that may increase over time, there is very little research that specifically investigates how demand-withdraw behaviors change as couples move into later life stages. There is, however, a larger body of research on aging suggesting that couples change in ways that would decrease the level of these behaviors later in life. Specifically, as couples move from middle-age to old age, research indicates that they experience less role strain (Burr, 1972) and have fewer areas of disagreement (Levenson et al., 1993), express less negative sentiment (Gilford & Bengtson, 1979), and have a greater orientation toward meaningful experiences (Carstensen, 1991). Therefore, it is hypothesized that cross-sectional and longitudinal findings will point to an overall decrease in the manifestation of demand-withdraw behaviors during discussions of conflict.

Aim 2: To examine differences between husbands and wives in demand and withdraw behaviors.

Hypothesis 2a: Wives will demonstrate more initial demand behaviors than husbands, and husbands will demonstrate more initial withdraw behaviors than wives.
Hypothesis 2b: The trajectory of change in demand behaviors and withdraw behaviors will differ for husbands and wives.

Rationale: This pattern of gender differentiation in demand-withdraw behaviors is pervasive across both research and clinical literature, and it is therefore expected that this finding will be replicated in the present study. Further, consistent with notions that gender-linked behaviors become less rigidly enacted in later life (Gutmann, 1987; Sinnott & Shifren, 2001), it is hypothesized that gender differentiation in demand and withdraw behaviors will decrease over

time. It is important to note that this decrease in differentiation could take a number of forms. For example, it may be that wives decrease in demand behaviors more than husbands to approach a level of demand behaviors that is similar to husbands, or it may be that husbands increase in demand behaviors to approach a level similar to wives.

Aim 3: To examine the relationship between demand-withdraw behaviors and marital satisfaction.

> Hypothesis 3a: Initial levels of demand-withdraw behaviors will be negatively associated with initial levels of marital satisfaction.
> Hypothesis 3b: Initial levels of demand-withdraw behaviors will predict the trajectory of change in marital satisfaction such that higher initial levels of demand-withdraw behavior will predict more negative trajectories of change in marital satisfaction.
> Hypothesis 3c: Change in demand-withdraw behaviors will change in marital satisfaction such that increases in demand-withdraw behavior will predict more negative trajectories of change in marital satisfaction.

Rationale: The finding that demand-withdraw behaviors are associated with lower levels of marital satisfaction is well-established in younger couples. It is hypothesized that this finding will be replicated in the present study. With regard to how demand-withdraw behaviors relate to changes in marital satisfaction, the literature has been more mixed. But given the destructive nature of demand-withdraw behaviors, it is hypothesized that initial levels of demand-withdraw will predict changes in marital satisfaction for the sample of middle-aged and older couples.

Importantly, most longitudinal studies of demand-withdraw and marital satisfaction only measure demand-withdraw at Time 1 and thus can only test how the initial behaviors predict changes in marital satisfaction. Given that demand-withdraw behaviors are not a static entity, however, what may be more important is how changes in demand-withdraw behaviors relate to changes in marital satisfaction (Fincham, Grych, & Osborne, 1994; Kurdek, 1995). Thus, this model of longitudinal change will also be evaluated, and it is expected that it will also predict changes in marital satisfaction for the sample of middle-aged and older couples.

Aim 4: To evaluate the extent to which demand-withdraw behaviors account for unique variance in marital satisfaction above and beyond that of other known predictors (e.g. self-reported affect, emotion behaviors, and physiological arousal).

> Hypothesis 4a: Initial demand-withdraw behaviors will be negative associated with initial marital satisfaction above and beyond other known predictors of marital satisfaction (levels of physiological arousal, self-reported negative affect, and negative emotion behaviors).
> Hypothesis 4b: Initial demand-withdraw behaviors will predict the trajectory of change in marital satisfaction above and beyond other known predictors of marital satisfaction (levels of physiological arousal, self-reported negative affect, and negative emotion behaviors).

Rationale: As noted above, Johnson et al. (2005) found that communication behaviors accounted for unique variance beyond that accounted for by emotion behaviors, and vice versa,

in both the initial levels and rates of change in marital satisfaction in a sample of newlywed couples. Therefore, it is hypothesized that a similar pattern of results will hold for demand-withdraw behaviors in relation to the variables (i.e. self-reported affect, emotion behaviors, and physiological arousal) found in our previous work to predict lower levels of marital satisfaction (e.g. Carstensen et al., 1995; Levenson et al., 1994; Levenson & Gottman, 1985).

METHODS

Participants

The sample in this study consisted of middle-aged and older couples who participated in a study of long-term marriages. The sampling and recruitment procedures for this sample have been reported in detail elsewhere (Levenson et al., 1993), so the following is a brief overview. Potential participants were recruited through newspaper advertisements in San Francisco Bay Area newspapers, flyers, posters on local busses, and radio announcements. Married couples interested in participating in the study contacted the research laboratory to ensure that the following criteria were met: 1) spouses were either between the ages of 40-50 and married at least 15 years or between 60-70 and married at least 35 years; 2) the age difference between spouses was not greater than five years; 3) spouses' marital satisfaction scores (instruments described below) were within 20 points of each other; 4) the primary wage earner was not yet retired; 5) English was the native language of both spouses or primary language spoken at home; and 6) neither spouse was alcoholic (as indicated with a score of seven or below for each spouse on the Michigan Alcoholism Screening Test (Selzer, 1971)).

Comparable numbers of both relatively satisfied and relatively dissatisfied couples were recruited for the middle-aged and older subsamples. The recruitment procedures were designed so that the final sample was representative of the demographics of the Bay Area in terms of religion, ethnicity, and socioeconomic status. The age and marital satisfaction requirements were included in order to make the sample representative of the modal long-term marriage, wherein couples are relatively close in age and marital satisfaction, and to ensure that spouses would not fall into separate age groups or differ substantially in their feelings about the marriage.

It should be noted that the sampling strategy for this study confounds the variables of age and marital duration. This was done purposefully because the goal of this study was to examine marriages that would be the most representative of long-term first marriages, in which age and length of marriage are typically associated. To separate these two variables in the sample (for example, requiring that middle-aged and older couples be married for the same amount of time) would result in a sample of couples who would be unrepresentative of at least one of the age cohorts (see Carstensen, Gottman, & Levenson (1995) for a more detailed discussion of the rationale behind the sampling strategy). Thus, in this study it is important to be aware that age differences are confounded with the duration of marriage.

Sample Characteristics Across the Time Points

Initial Sample at Time 1 (1989). The total sample for the study consisted of 156 couples (82 middle-age couples, 74 older couples). All but one couple was in their first marriage. The ethnic distribution of the couples was 86% Caucasian, 4% Black, 3% Hispanic, 3% Asian, and 4% other. Most couples were Protestant or Catholic (62%), and had relatively high socioeconomic status. The middle-aged couples were married an average of 21.7 years (SD =

3.4), and the mean ages were 45.3 (SD = 2.9) for husbands and 44.8 (SD = 2.9) for wives. The older couples were married an average of 40.7 years (SD = 3.6), and the mean ages were 64.4 (SD = 3.1) for husbands and 63.0 (SD = 3.3) for wives. The vast majority of couples (149) had children, and one middle-aged couple was expecting their first child. Middle-aged couples had an average of 2.2 children (SD = 1.0, range 0 – 5), and older couples had an average of 3.2 children (SD = 1.4, range 0 – 8).

Time 2 (1995). One hundred thirty two of the original 156 couples were assessed with questionnaires and 125 (of the 132) participated in the observational laboratory assessment. As can be seen in Table 1, five couples had divorced; one or both spouses was deceased in ten couples; and nine couples either chose not to participate or could not be contacted.

Time 3 (2001). Ninety eight of the original 156 couples were assessed with questionnaires and 90 (of the 98) participated in the observational laboratory assessment. As can be seen in Table 1, 8 couples had divorced; one or both spouses was deceased in 26 couples (the majority being older couples); and 21 couples either chose not to participate or could not be contacted.

Time 4 (2007). Couples still known to be participating in the study were assessed with questionnaires mailed to their home. For a total of 53 couples, both husbands and wives responded with the questionnaires.

Time 5 (2009). Couples still known to be participating in the study were assessed with questionnaires mailed to their home. For a total of 46 couples, both husbands and wives responded with the questionnaires[3].

Final Sample. The final study sample consists of all couples for which there is observational data for both spouses at least two of the three laboratory assessment time points. This was due to the fact that trajectories of change for two of the primary variables of interest (demand-withdraw behaviors, marital satisfaction) could not be computed from only one time point. The final sample consisted of 126 couples (63 middle-aged couples; 63 older couples). Table 2 reflects the composition and demographic characteristics of the initial sample and the final sample. As detailed in the sections below, all available data from each of the data collection time points were used in the analyses.

Procedure

Questionnaires.

At four of the five waves of data collection (all but Time 4), each spouse individually completed a packet of questionnaires at home prior to the couple's laboratory visit. The packets assessed a number of domains, including: (a) general demographic information, (b) physical health, (c) psychological health, and (d) marital satisfaction. Couples returned their questionnaire packets via mail. For the Time 4 wave of data collection, an additional questionnaire was sent to each spouse individually. This packet assessed various domains of relationship functioning, as well as marital satisfaction. For the current study, only data from the general demographic questionnaire and the marital satisfaction questionnaires as assessed at each of the five time points was used (details below).

[3] Couples also participated in the laboratory assessment paradigm at Time 5. When the present study was conducted, however, data collection from laboratory visits was still underway. Therefore, only data from the questionnaires was used from this time point.

Laboratory Assessment.

The procedures employed for laboratory visits in this study were derived from those developed by Levenson and Gottman (1983). Couples came to the laboratory and had recording devices for obtaining physiological measures attached to them. The couples then engaged in three conversations: (a) discussing the events of the day at Time 1 (or of the past several years at Times 2 and 3); (b) discussing an area of continuing conflict and disagreement in their relationship and working to resolve it; and (c) discussing a mutually agreed upon pleasant topic. Prior to initiating the conflict area discussion, couples completed the Couple's Problem Inventory (Gottman, Markman, & Notarius, 1977), in which they rated the perceived severity of 10 relationship issues on a 0-to-100 scale. They were also given the option of writing in and rating additional topics that were not on the list. Using these ratings, an experimenter helped couples pick a topic that both spouses had rated highly. The experimenter briefly interviewed the spouses about the topic, and helped them focus on the key area of disagreement in order to make the ensuing discussion more personal and less abstract. Couples completed a similar inventory prior to initiating the pleasant topic discussion in which they rated the enjoyment they derived from 16 topics on a 0-to-100 scale. For the events of the day conversation, couples were simply told to discuss what had happened during the past day.

Each conversation lasted for 15 minutes and was preceded by a five-minute silent period. During the silent periods and conversations, a broad sample of physiological measures was obtained and a video recording was made of the interactions. Spouses then attended a second laboratory session (separately at Time 1, together at Time 3) in which they watched the video recordings and independently provided ratings of how they were feeling during the interactions using a rating dial. The rating dial consists of a rotary knob with a pointer that traverses a 180-degree path with anchors ranging from 1 (*extremely negative*) to 5 (*neutral*) to 9 (*extremely positive*). Spouses were directed to use the rating dial to indicate how they were feeling during the original interaction with the following instruction:

> *"While you watch these videos, we want you to use these rating dial boxes to rate how positively or negatively you think you were feeling then, during the actual conversation. That is, not how you feel now when you are watching it, but how you think you were feeling then. For example, if you think you were feeling very positively, you would turn the dial to the right like this [dial turned to 9]. Or if you think you were feeling very negatively, you would turn the dial to the left like this [dial turned to 1]. Sometimes you may think you were feeling neutrally, so you would just leave it turned to the middle, like this [dial turned to 5]."*

This procedure has been previously validated as a means for obtaining continuous self-report of an individual's emotional state (Gottman & Levenson, 1985). For the purposes of the present study, only data from the conflict area discussion during the laboratory visits from Time 1, Time 2, and Time 3 were utilized.

Apparatus

A video recording was made of the marital interactions using two partially concealed remotely controlled high-resolution video cameras. The videos captured frontal views of each spouse's face and upper torso. These images were combined into a single split-screen image with a video special effects generator and were recorded on a VHS videocassette recorder. Two

lavaliere microphones were used to record the spouses' conversations. Participants were aware that they were being videotaped, and all gave their permission for the research team to view their videotapes for use in analyses. Participants were additionally given the option to allow the research team to use their videos in other capacities such as conference presentations, classroom presentations, media presentations, or as stimulus materials for other studies.

Measures and Data Reduction

Marital Satisfaction

Marital satisfaction was assessed using two self-report measures. The Marital Adjustment Test (MAT; Locke & Wallace, 1959) consists of 15 items emphasizing agreement between spouses in various life domains, and amount of leisure time spent together. Chronbach's alphas for this measure ranged from .80 to .90 across the time points, with an average of .86. The Marital Relationship Inventory (MRI; Burgess, Locke, & Thomes, 1971) consists of 22 items measuring satisfaction with affection and sexuality in the marriage, and overall satisfaction with the marriage, as well as areas of agreement. Chronbach's alphas for this measure ranged from .70 to .79 across the time points, with a mean of .76.

Pearson's correlations between individual spouses' MAT and MRI marital satisfaction measures at each assessment time point ranged from .72 to .89, with a mean of .81. Consistent with our previous research, a final marital satisfaction score was computed for each spouse at each time point by averaging the scores from the two instruments in order to ensure full coverage of the marital satisfaction construct and enhance reliability.

Demand-Withdraw Behavior

Demand-withdraw behaviors during the conflict interactions were coded by research assistants trained in the Couples Interaction Rating System (CIRS; Heavey, Gill, & Christensen, 1996) who viewed the video recordings of the interactions. The CIRS includes 13 dimensions of communication behaviors, four of which are used to measure demand-withdraw behaviors and therefore were used in this study (Appendix A): blame, pressure for change, withdrawal, and avoidance. Coders watched the entire conflict interaction and were asked the provide ratings of various behaviors displayed by a couple member using a 9-point Likert scale ranging from Not at All (1) to A Lot (9). Coders were instructed to consider the relative intensity of the behavior along with the frequency when generating ratings of the four given behaviors rather than using a simple counting or tallying of the behaviors.

Rating took place over two years with two primary teams of coders. Raters were trained for approximately four weeks using a series of videotapes from a separate study of marital interaction. Videos from each of the three time points were coded in a randomized order. Each conflict interaction was coded independently by four to six coders, with a group of two or three coders randomly assigned to the husband and a group of two or three coders randomly assigned to the wife. The mean of the raters' scores was used in the final analyses. Coders attended weekly meetings to discuss their ratings and maintain reliability. Interrater reliability (alpha) was computed within each team. Coders have demonstrated high reliability, with an average Chronbach's alpha of 0.90 for blame, 0.92 for pressure, 0.80 for withdrawal, and 0.83 for avoidance.

From the four CIRS dimensions used in this study, two subscales, *demand* and *withdraw*, were generated. Demand consists of the average of the ratings for "blame" and "pressure for

change." Withdraw consists of the average of the ratings for "withdrawal" and "avoidance." These subscales are based on those used by Christensen and colleagues and other researchers across multiple studies (e.g., Caughlin & Vangelisti, 2000; Christensen & Heavey, 1990). From the demand and withdraw subscales, the following composite scores were calculated: *wife-demand/husband-withdraw* (WDHW; the sum of the wife's demand score and the husband's withdraw score); *husband-demand/wife-withdraw* (HDWW; the sum of the husband's demand score and the wife's withdraw score); *total demand-withdraw* (TotDW; the sum of all husband and wife demand and withdraw behaviors).

Physiological Arousal

Seven physiological measures were obtained from each spouse using a system consisting of a Grass Model 7 12-channel polygraph and a computer: (a) cardiac interbeat interval (IBI)—Beckman miniature electrodes with Redux paste were placed in a bipolar configuration on opposite sides of the subject's chest and the interval between successive R-waves of the electrocardiogram (EKG) was measured in milliseconds (ms); (b) skin conductance level—a constant voltage device passed a small voltage between Beckman regular electrodes attached to the palmar surface of the middle phalanges of the first and third fingers of the nondominant hand using sodium chloride in Unibase as the electrolyte; (c) general somatic activity—an electromechanical transducer attached to a platform under the subject's chair generated an electrical signal proportional to the amount of body movement in any direction; (d) pulse transmission time to the finger—a UFI photoplethysmograph was attached to the second finger of the nondominant hand. The time interval was measured between the R-wave of the EKG and the upstroke of the peripheral pulse at the finger; (e) finger pulse amplitude—the trough-to-peak amplitude of the finger pulse was measured, providing an index of the amount of blood in the periphery; (f) finger temperature—a Yellow Springs Instruments thermistor was attached to the palmar surface of the first phalange of the middle finger of the dominant hand with surgical tape; and (g) pulse transmission time to the ear—a UFI photoplethysmograph attached to the right earlobe recorded the volume of blood in the ear. The time interval was measured between the R-wave of the EKG and the upstroke of the peripheral pulse at the ear. This set of physiological measures was selected to sample broadly from major systems (cardiac, vascular, thermoregulatory, electrodermal, somatic muscle), to allow for continuous measurement, to be as unobtrusive as possible, and to include measures used in previous studies of marriage (e.g, Levenson & Gottman, 1983) and emotion (Fredrickson & Levenson, 1998).

The physiological data was collected by a computer programmed to derive second-by-second averages for each physiological measure for each spouse individually. Using these averages, means and standard deviations were calculated for each physiological measure for the 5-minute silent period before each conversation and for the entire 15-minute interaction period. To compute an index of overall physiological arousal during the conversation, physiological change scores were computed for each measure by subtracting the averaged level for the 5-minute pre-conversation baseline from the averaged level during the 15-minute conversation. These change scores were then standardized and reverse scored as needed (i.e., cardiac inter-beat interval, finger pulse amplitude, finger pulse transmission time, ear pulse transmission time) so that for all measures, larger values reflected physiological arousal over the baseline state. The standardized scores were then averaged, resulting in a single physiological arousal composite score for each spouse.

Negative Self-Reported Affect

Following procedures used in earlier studies (Levenson et al., 1994; Levenson & Gottman, 1983), self-reported affect scores were computed using the rating dial data from the spouse's second laboratory visit. For each conversation, rating dial data were averaged into 90 10-second periods. *Z*-scores were computed for each of these segments. Each period was then classified as affectively positive, negative, or neutral using a conservative combined raw score and *z*-score criterion. A segment was classified as positive if the mean rating dial position was greater than or equal to 6.0 on the 1- to 9-point rating dial, and the *z*-score of that rating was greater than or equal to 0.5; the respective scores for a negative segment were less than or equal to 4.0, and less than or equal to -0.5. For each spouse in each conversation, variables were calculated that reflected the number of positive, negative, or neutral affect periods each spouse reported feeling across the course of the conflict conversation. Because this study was specifically investigating predictors of marital dissatisfaction, only negative self-reported affect scores were considered.

Negative Emotion Behavior

Emotion behaviors during the conflict interactions were previously coded by research assistants (no overlap with those who did the demand/withdraw coding) trained in the Specific Affect Coding System (SPAFF; Gottman & Krokoff, 1989; SPAFF Version 2.0, Gottman, 1989). Coders viewed the videotapes of marital interaction and made assessments of the emotions being expressed by speakers and listeners, taking into account the verbal content, voice tone, context, facial expression, gestures, and body movements of speaker and listener. Codes were assigned on a second-by-second basis with each second coded as being one of five positive speaker codes (interest, affection, humor, validation of partner's feelings, or joy), one of nine negative speaker codes (anger, contempt, disgust, belligerence, domineering, defensiveness, fear/tension/worry, sadness, or whining), or a neutral speaker code indicating that no affective behavior was present. Listener codes were also assigned each second (positive, negative, neutral, or stonewalling). Reliability for SPAFF codes was based on second-by-second concordance of observer ratings throughout the 15-minute (900-second) interaction period (see Carstensen et al. (1995) for complete information about SPAFF coding and its reliability in this study). Interrater reliability (kappa) for the overall coding system was high, kappa = .64, and the mean *z* score (kappa divided by the standard deviation of kappa) was 19.25 ($p < .001$). The mean kappa for speaker codes was 0.60 and the *z* score was 15.02 ($p < .001$). For listener codes, the mean kappa was 0.71 and the *z* score was 16.92 ($p < .001$).

Because this study was specifically investigating predictors of marital dissatisfaction, only negative speaker codes were considered (Appendix B). A negative emotion index was generated by summing the periods of the nine negative emotion speaker codes.

Analytical Strategy

Aims 1 and 2: Assessing Group Differences in Demand-Withdraw Behaviors

The first two study aims were directed at assessing group differences (e.g., age and gender) in demand and withdraw behaviors, as well as looking at how these behaviors changed over time. To evaluate each of the hypotheses related to these aims, the data were analyzed by looking at group-level differences in the initial values and rates of change of demand and withdraw behaviors. This method is based on individual growth curve analysis (GCA), a statistical technique in which individual intercepts and trajectories of longitudinal change are

estimated for a construct measured repeatedly over time (Kenny, Kashy, & Cook, 2006; Kurdek, 2003; Raudenbush, Brennan, & Barnett, 1995).

Analyzing data using this method is equivalent to computing a linear regression for each participant wherein multiple data points for a given variable are summarized into two parameters: 1) the intercept, which represents an estimated, error-free initial level of the variable, and 2) the slope, which represents the trajectory of change in the variable associated with time. The slope values can be interpreted like regression coefficients. For example, a negative slope for blame would indicate that blame behaviors decreased linearly across the three time periods; a positive slope would indicate that blame increased across the three time periods. This procedure treats the relationship between time and the behavior variable as a linear function, with deviations from the line of best fit interpreted as measurement error or effects of non-measured predictors on the dependent variable. This technique presumes that the demand-withdraw behavior trajectories over the 13 years of the study were, in fact, linear. This assumption is evaluated in the analyses presented in the section below.

Demand-withdraw intercept and slope values were calculated following the procedure utilized by past researchers in our laboratory (Kupperbusch, 2003; Shiota & Levenson, 2007). Each demand-withdraw behavior score of interest for each of the spouses from the three assessments was regressed onto the number of years since that couple's first laboratory visit (years were calculated by dividing the days between assessment time points by 365).[4] The calculations were performed using the intercept and slope functions in Microsoft Excel. The resulting values were used as the dependent variables in subsequent analyses in order to test whether there are group differences in the initial levels or rates of change in the demand-withdraw variables. This method of intercept and slope calculation is similar to that of multi-level modeling techniques such as hierarchical linear modeling (HLM; described below). HLM was not used to address these two aims due the fact that demand-withdraw data was only available for three time points. Researchers have suggested that HLM is not optimal for dyadic data with so few observations because convergence problems with intercept and slope variance estimates are extremely common (Bryk & Raudenbush, 1992; Newsom & Nishishiba, 2002). Therefore, the individual growth curve model of analysis was employed to evaluate group differences in intercept and slope values for the hypotheses related to these aims.

As noted above, for all analyses, all data was used for couples for which there were two or more assessments. Values for all missing data were imputed though maximum likelihood estimation (Aldrich, 1997). This method maximizes the usable data from the study sample and has been shown to be more robust in terms of accuracy of estimation than other methods that correct for missing values by deleting (pairwise or listwise) missing data (Wothke, 2000).

Finally, in many past studies, demand-withdraw behaviors have been considered only as composite variables (either a total demand-withdraw behavior composite or as part of the gender-differentiated patterns). But because the demand-withdraw pattern consists of four different behaviors coming from two different actors, the analyses related to Aims 1 and 2 are evaluated both at the composite levels and at the level of individual behaviors in order to more

[4] An alternative to this procedure would be to regress the behaviors scores onto the numbers 0, 1, and 2 (representing the waves of data collection) to calculate intercept and slope scores. While the use of waves versus years between assessment did not affect the general pattern of findings presented here, years between assessments was selected as the regression vector as there was some variability in the time between assessments that was not captured when using the dummy variables. Further, the hierarchical linear modeling analyses generally showed higher reliability estimates (i.e., the model was a better fit) when using the more precise time estimate of years.

fully characterize age and gender differences in demand and withdraw behaviors. Notably, these individual behaviors are not independent of each other. That is, that the presence of one behavior (e.g., blame) may influence the presence of another behavior (e.g., withdrawing). Therefore, the non-independence of the individual demand-withdraw behavior variables was addressed via the use of multivariate ANOVA models. Further, when looking at gender differences, repeated-measures models were used to account for the interdependence of husband and wife behaviors.

Aims 3 and 4: Predicting Marital Satisfaction from Demand-Withdraw Behaviors

The third and fourth study aims were directed at assessing whether demand-withdraw behaviors (by themselves and in relation to other known predictor variables) were predictive of levels of marital satisfaction, both concurrently and over time. To address these aims, a hierarchical linear modeling (HLM) approach was used. HLM is a multi-level approach to growth curve analysis which has been utilized in recent marital research employing a similar design to that of these aims (e.g. Atkins, 2005; Caughlin, 2002; Johnson et al., 2005; Kurdek, 2005) and will optimally allow tests of predictive change in the outcome variable of interest (e.g. marital satisfaction) in the sample of middle-aged and older married couples. Because two additional marital satisfaction data points were available, the convergence problems that were a limiting factor for the previous set of aims did not present the same issue for these analyses.

HLM was selected because it was designed to handle both nonindependent data and nested data (Caughlin, 2002). In the present study, individuals' scores are nested both within time and within couples. To deal with this nesting, HLM treats the data as coming from different levels. Level 1 uses estimates to calculate two growth curve parameters for each subject: an intercept, representing the initial value of the variable of interest, and the slope, representing the rate of change in the variable over unit of time. This statistical model used for hierarchically structured data is the same statistical model used for longitudinal analysis of individual growth curves as noted above (Bryk & Raudenbush, 1992; Newsom, 2002). The advantage of using HLM over the individual growth curve method utilized for the previous aims is that the Level 1 estimates for each individual are adjusted to account for the interdependence between spouses' intercepts and slopes. Level 2 then defines the nesting in the model, thus creating a between-subjects model in which Level 1 parameters can be predicted from variables that differed across couples, such as age (Raudenbush et al., 1995; Raudenbush & Bryk, 2002).

An HLM approach to the analyses offers a number of advantages over other methods. First, as demonstrated above, it can account for a nested data design. This is important because failing to account for interdependence of spouses' data can lead to spurious conclusions and biased significance tests (Kenny et al., 2006). Some researchers have dealt with this issue by conducting separate analyses for husbands and wives. This approach is limited in that it reduces the statistical power of the study and can create difficulties with the interpretation of gender differences in the data (Campbell & Kashy, 2002). Second, because HLM can estimate both slopes and intercepts within the same statistical model, it can account for the correlation between the initial scores and trajectory scores to best delineate estimates of change over time (Karney & Bradbury, 1995).

Finally, this method specifically allows for missing data and for individuals to be measured at different occasions and different numbers of occasions (MacCallum, Cheongtag, Malarkey, & Kiecolt-Glaser, 1997; Raudenbush et al., 1995). Therefore, for all analyses, data was used from couples who had participated in at least two of the assessment periods (N = 126).

Missing data was also dealt with using the procedure of maximum likelihood estimation, which was automatically computed when running the HLM analyses. For all multilevel modeling, HLM software was utilized (HLM6; Raudenbush, Bryk, & Congdon, 2008) and the procedures suggested by Raudenbush, Brennan, & Barnett (1995) and Campbell and Kashy (2002) for analyzing dyadic data were followed.

RESULTS

Preliminary Descriptive Analyses

Support for a Linear Model of Change

As a first step to growth curve modeling, mean values of total demand-withdraw behaviors were plotted for all spouses (Figure 1), separately for middle-aged and older spouses (Figure 2), and separately for husbands and wives (Figure 3). This graphical representation of the data allows for an initial look at the pattern of change in demand-withdraw behaviors over time and guides the process of testing feasible models in terms of the shape of growth. Repeated-measures within-subjects contrast effects were evaluated for each of these sets of values to determine if the data showed a linear trend versus a quadratic trend.

Starting with Figure 1, a number of observations can be made. First, the trajectory of change in demand-withdraw behaviors appears to be slightly positive and conform to a linear pattern. A repeated-measures analysis of variance (ANOVA) test was used to evaluate trends within the data. Total demand-withdraw scores at each of the three time points were entered as the repeated measures. The within-subjects contrasts results showed support for a linear model of change in total demand-withdraw behaviors, $F(1,125) = 20.0$, $p < .001$. There was no support for a quadratic model of change. In Figure 2, these behaviors appear to increase for both middle-aged and older couples. The above analyses were repeated for middle-aged and older couples separately. The within-subjects contrasts results supported a linear model for both middle-aged couples, $F(1,125) = 5.69$, $p < .05$, and older couples, $F(1,125) = 17.22$, $p < .001$. No support was found for quadratic models of change. In Figure 3, the trajectory of longitudinal change in these behaviors appears show a pattern of increase over time for both spouses. The above analyses were repeated for husbands and wives separately. The within-subjects contrasts results again provided evidence for a linear model for both husbands, $F(1,125) = 9.24$, $p < .01$, and wives, $F(1,125) = 14.42$, $p < .001$. No support was found for quadratic models of change. Taken together, within-subjects contrast findings support the decision to examine change in demand-withdraw behaviors as a linear model.

Additional observations of Figure 2 and Figure 3 suggest that there may be age and gender differences in demand-withdraw behaviors. Results of cross-sectional and longitudinal models testing age group and gender differences in the intercept and slope values of demand-withdraw behaviors are presented below.

Correlations between Variables

Correlations between variables were examined in order to assess the relationships of interest. Table 4 shows the correlations between individual's demand and withdraw behavior variables within and across time points. The data suggests that the two demand behaviors, blame and pressure, are strongly correlated within time points. Similarly, the two withdraw behaviors,

withdrawal and avoidance, are correlated, though to a lesser degree than the demand behaviors. With regard to the relationship between demand and withdraw variables, two common patterns emerged. For both spouses, and across multiple time points, avoidance was negatively correlated with the two demand behaviors (e.g., as spouses' level of demand increases, their level of avoidance decreases). Withdrawal behaviors, on the other hand, were relatively unassociated with blame and pressure behaviors. Finally, there appears to be a strong association for each of the behaviors with itself over time. That is, the extent of a given behavior at Time 1 is strongly correlated with the extent to which a spouse displays that behavior at Time 2 and Time 3.

Table 5 shows the correlations between spouses of all the individual demand and withdraw behaviors. As would be expected, husbands' withdrawal behaviors were positively associated with wives' demand behaviors. Conversely, and surprisingly, husbands' avoidance behaviors were negatively (or non-significantly) associated with wives' demand behaviors across the time points. Overall, there was not a significant trend toward association between husbands' demand behaviors and wives' withdraw behaviors. Further, there was a generally a trend toward positive associations between husbands and wives on each on the individual behaviors. That is, for example, the more a wife demonstrated a specific behavior, the more her husband demonstrated that same behavior. This was particularly true for blame (average r across time points = .40) and avoidance (average r across time points = .70).

Finally, Table 6 shows the correlations between total demand-withdraw behaviors and the other variables of interest in the study: physiological arousal, self-reported affect, observed negative emotion behaviors, and marital satisfaction. Each predictor variable is negatively correlated with marital satisfaction at Time 1. There are also correlations between the predictor variables themselves, particularly with the emotion behavior variable. The extent to which each of these predicts marital satisfaction in relation to demand-withdraw will be examined below.

Aim 1: Age Differences in Demand-Withdraw Behaviors

The first aim of this study was to characterize age-related differences in demand and withdraw behaviors. Because there were two age cohorts assessed at three time points over 12 years, age differences were examined from both a cross-sectional and longitudinal perspective by evaluating group differences in demand-withdraw intercept and slope scores, respectively. As noted above, the hypotheses are framed in terms of initial values (i.e., intercept scores) and trajectories of change (e.g., slope scores). These hypotheses are tested at the couple level; effects of age-by-spouse interactions will be explored in the next set of hypotheses related to gender differences.

Age Differences in Demand-Withdraw Intercepts

Hypothesis 1a stated that middle-aged couples will demonstrate greater initial amounts of demand-withdraw behaviors than will older couples. This hypothesis was tested using a multivariate analysis of variance (MANOVA) model. Each of the individual demand and withdraw behavior intercept scores (blame, pressure, withdrawal, and avoidance) were entered as the dependent variables and age group was entered as a between-subjects factor. The model of analysis allowed the effects of age on to be simultaneously evaluated for each individual demand-withdraw behavior. Results showed that there was a significant main effect of age group on demand-withdraw behaviors, $F(4,121) = 2.50$, $p < .05$, $\eta_p^2 = .08$.[5]

[5] When I conducted an ANOVA of total demand-withdraw behaviors taken as a summed value, there was not a significant age group difference, $F(1, 124) = 1.61$, $p = .21$. Therefore, while the average overall level of demand-

To determine which specific demand and withdraw behaviors accounted for this group difference, differences in the individual dependent variables were examined using the resultant univariate ANOVAs from the multivariate analysis. The results showed that middle-aged couples demonstrated more pressure behaviors than did older couples, $F(1, 124) = 6.98$, $p < .01$, $\eta_p^2 = .05$, whereas older couples demonstrated more avoidance behaviors than middle-aged couples, $F(1, 124) = 4.23$, $p < .05$, $\eta_p^2 = .03$. There was additionally a trend toward more blame behaviors in the middle-aged couples than the older couples, but the finding did not reach significance ($p = .06$). Table 7 gives the means and standard deviations of the demand-withdraw intercept variables for each age group, as well as a summary of the above test results.

These results suggest that there is an age group difference in initial demand-withdraw behaviors, but the differences do not occur in a uniform direction. While middle-aged couples show more initial demand behaviors than do older couples, older couples show more initial withdraw behaviors than do middle-aged couples (Figure 4).

Demand-Withdraw Slopes

Hypothesis 1b stated that, for the full sample of couples, demand-withdraw behaviors would decrease over time. To test this, the pattern of mean scores for the demand-withdraw behavior slopes was examined. Because a slope was computed for each individual spouse on each specific demand-withdraw behaviors, the mean level of slope values provided information about the overall pattern of change for the sample. A one-sample t-test was computed to determine if the slope for total demand-withdraw behaviors was significantly different than zero, either in a positive or negative direction. Results showed that, for the full sample, the slope of total demand-withdraw behaviors was significantly different than zero, $t(125) = 4.47$, $p < .001$. Further, the slope was in a positive direction ($M = 0.18$, $SD = 0.44$), indicating that overall, demand-withdraw behaviors for the sample increased over time.

To determine which specific demand and withdraw behaviors were increasing at a significant rate over time, separate one-sample t-tests were conducted for the individual demand and withdraw behavior variables. All behaviors showed overall positive mean slopes, indicating an increase in the behavior over time. There were significantly positive slopes for withdrawal, $t(125) = 2.77$, $p < .01$, and for avoidance, $t(125) = 4.90$, $p < .001$. The slopes for blame and pressure were positive though did not reach a level of statistical significance. Table 8 shows the means and standard deviations of the demand-withdraw slope variables for the whole sample, as well as for a summary of the above test results.

These results suggest that, contrary to what was hypothesized, demand-withdraw behaviors show an overall pattern of increase over time. This is particularly true for the two withdraw behaviors.

Age Differences in Demand-Withdraw Slopes

Hypothesis 1c stated that the trajectory of change in demand-withdraw behaviors will be significantly more negative for the middle-aged couples than for the older couples. This hypothesis was tested using a multivariate analysis of variance (MANOVA) with demand-withdraw behavior slope scores as the dependent variables and age group as a between-subjects factor. Demand-withdraw intercept scores for each of the four behavior variables were entered

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withdraw is not significantly different between cohorts, analyzing this within a multivariate framework reveals that there are group level differences in this set of behaviors. This points to the important of evaluating the individual components of the demand-withdraw pattern.

as covariates in order to control for the effects of initial demand-withdraw levels on trajectories of change. As with the test of intercepts, this analysis allowed the effects of age on each demand and withdraw slopes variable (blame, pressure, withdrawal, and avoidance) to be tested simultaneously. Results indicated that there was a main effect for age group on the trajectory of change in demand-withdraw behaviors, $F(4, 117) = 3.87$, $p < .01$, $\eta_p^2 = .12$.

To determine which specific demand and withdraw behaviors accounted for this group difference, differences in the individual dependent variables were examined using the resultant univariate ANOVAs from the multivariate analysis. The results showed that older couples increased in avoidance behaviors at a significantly greater rate than did middle-aged couples, $F(1, 120) = 12.90$, $p < .001$, $\eta_p^2 = .10$. There was a trend toward a greater rate of increase in blame behaviors in the middle-aged couples, but the finding did not reach significance ($p = .07$). Table 9 gives the means and standard deviations of the demand-withdraw slope variables for each age group, as well as a summary of the above test results.

These results suggest that, contrary to what was hypothesized, not only do demand-withdraw behaviors tend to increase over time, but they increase at a steeper rate of change for older couples than for middle-aged couples (Figure 5). This age group difference appears to be largely driven by greater rates of change in avoidance behaviors in the older couples.

Aim 2: Gender Differences in Demand-Withdraw Behaviors

The second aim of the study was to characterize gender differences in demand and withdraw behaviors in this sample of long-term married couples. For this set of analyses, gender differences were first evaluated for the full sample, then follow-up analyses were conducted to determine if there were differences in the pattern of gender differentiation for the middle-aged group versus the older age group.

Gender Differences in Demand-Withdraw Intercepts

Full Sample. Hypothesis 2a stated that wives will demonstrate more initial demand behaviors than husbands, and husbands will demonstrate more initial withdraw behaviors than wives. This hypothesis was tested using a doubly multivariate repeated measures ANOVA. This method accounted for the interdependence of husband data and wife data and allowed the effects of gender on each demand and withdraw intercept variable to be tested simultaneously. Spouse was entered as the repeated measure and the individual demand-withdraw intercept variables (blame, pressure, withdrawal, and avoidance) were entered as the multiple dependent measures. Results for the multivariate model were significant, $F(4, 122) = 5.87$, $p < .001$, $\eta_p^2 = .16$, indicating that there was a significant main effect of spouse on demand-withdraw behaviors.

To determine which specific behaviors accounted for the gender differentiation, differences in the individual dependent variables were examined using the resultant univariate ANOVAs. As expected, wives demonstrated more blame behaviors, $F(1, 125) = 14.71$, $p < .001$, $\eta_p^2 = .11$, and more pressure behaviors, $F(1, 125) = 11.02$, $p < .001$, $\eta_p^2 = .08$ than did their husbands. Conversely, husbands demonstrated significantly more withdrawal behaviors, $F(1, 125) = 12.75$, $p < .001$, $\eta_p^2 = .09$ than did their wives. There was additionally a trend toward more avoidance behaviors in the husbands than the wives, but the finding did not reach significance ($p = .10$). Table 10 gives the means and standard deviations of the demand-withdraw intercept variables for each spouse, as well as a summary of the above test results.

Because demand-withdraw behaviors are typically treated as part of a gender differentiated pattern (e.g., wife demanding and husband withdrawing), a repeated-measures

ANOVA was conducted to evaluate differences in the respective demand-withdraw patterns. Specifically, wife-demand/husband-withdraw and husband-demand/wife-withdraw intercept values were entered as repeated measures. Results showed that there was significantly higher levels of the wife-demand/husband-withdraw pattern than the reverse, $F(1, 125) = 20.95$, $p < .001$, $\eta_p^2 = .14$ (Figure 6).

By Age Group. Secondary analyses were conducted to determine if age affected the gender difference findings in demand and withdraw intercept values. This was done in two ways: 1) by adding spouse-by-age interaction terms to the above analyses to evaluate whether the gender differences in demand-withdraw behaviors significantly differ by age group, and 2) by repeating the above set of analyses separately for middle-aged and older couples to determine if the general set of gender difference findings holds for each age group.

First, with regard to the interaction term, the variable of cohort (middle-aged vs. older) was added as a between subjects factor to the doubly multivariate repeated measures ANOVA; this created a spouse-by-age interaction term in the model. Results showed there was not a significant interaction, $F(4, 121) = 1.65$, *n.s.*, $\eta_p^2 = .05$ for the overall model. When looking at individual demand-withdraw behaviors from the resultant univariate ANOVAs, there was a significant interaction effect on avoidance, $F(4, 124) = 6.46$, $p < .05$, $\eta_p^2 = .05$. This indicates the difference between husbands and wives in initial levels of avoidance is significantly greater for older couples than for middle-aged couples. There were no significant spouse-by-age interaction effects on blame, pressure, or withdrawal.

Second, with regard to separate analyses for each cohort, the multivariate models showed a significant main effect of spouse on demand-withdraw behaviors for both middle-aged couples, $F(4, 59) = 3.57$, $p < .05$, $\eta_p^2 = .20$, and older couples, $F(4, 59) = 3.57$, $p < .05$, $\eta_p^2 = .20$, respectively. Gender differences in each of the demand-withdraw intercept variables were then evaluated for each cohort. A Bonferroni correction for Type I error resulted in an individual alpha of .01. After the correction, results were not significant for gender differences in any of the demand or withdraw variables for middle-aged couples, though, there was a trend toward significance for blame (wives > husbands, $p = .03$), pressure (wives > husbands, $p = .07$) and withdrawal (husbands > wives, $p = .04$). Older couples, on the other hand, showed significant differences for blame (wives > husbands, $F(1, 62) = 10.24$, $p < .01$, $\eta_p^2 = .14$), pressure (wives > husbands, $F(1, 62) = 8.11$, $p < .01$, $\eta_p^2 = .12$), and withdrawal (husbands > wives, $F(1, 62) = 8.16$, $p < .01$, $\eta_p^2 = .12$). There was a trend toward a gender difference for avoidance behaviors (husbands > wives, $p = .02$), but it was non-significant after the statistical correction. Table 11 gives the means and standard deviations of the demand-withdraw intercept variables for each spouse within each age group, as well as a summary of the above test results.

Age group differences were also explored in the gender differentiated patterns of demand-withdraw intercept scores. First, cohort was added as a between-subjects factor to the repeated-measures ANOVA comparing wife-demand/husband-withdraw and husband-demand/wife-withdraw intercepts; this created a pattern-by-age interaction term in the model. Results showed no significant interaction effect, $F(4, 121) = 1.62$, *n.s.*, $\eta_p^2 = .01$. Second, when the analysis was conducted separately for each age group, results showed that both middle-aged couples, $F(1, 62) = 5.83$, $p < .05$, $\eta_p^2 = .09$, and older couples, $F(1, 62) = 16.25$, $p < .001$, $\eta_p^2 = .21$, demonstrated higher initial levels of the wife-demand/husband-withdraw pattern than the husband-demand/wife-withdraw. Contrary to what was expected, however, it appears that degree of gender differentiation is greater for older couples than for middle-aged couples (Figure 7). Based on the interaction findings, this difference is not significant.

Gender Differences in Demand-Withdraw Slopes

Full Sample. Hypothesis 2a stated that the trajectory of change in demand behaviors and withdraw behaviors will differ for husbands and wives. This hypothesis was also tested using a doubly multivariate repeated measures ANOVA. In this analysis, spouse was the repeated measure and the individual demand-withdraw slope variables (blame, pressure, withdrawal, and avoidance) were entered as the multiple dependent measures. Results for the multivariate model were not significant, $F(4, 122) = 1.51$, *n.s.,* $\eta_p^2 = .05$, indicating that there was not a significant main effect of spouse on demand-withdraw trajectories.

Looking at the univariate comparisons from this analysis, results indicate that wives showed a greater trajectory of increase in blame behaviors than did husbands, $F(1, 125) = 4.09$, $p < .05$, $\eta_p^2 = .03$. There were no significant differences between the spouses in the slopes of pressure, withdrawal, or avoidance. Table 12 gives the means and standard deviations of the demand-withdraw slope variables for each spouse, as well as a summary of the above test results.

A repeated-measures ANOVA was conducted to evaluate differences in the respective demand-withdraw patterns. For this analysis, wife-demand/husband-withdraw and husband-demand/wife-withdraw slope values were entered as repeated measures. Results showed no difference between the slope of wife-demand/husband-withdraw and husband-demand/wife-withdraw patterns, $F(1, 125) = 0.73$, *n.s.,* $\eta_p^2 = .01$ (see Figure 8).

By Age Group. Secondary analyses were conducted to determine if age affected the gender difference findings in demand and withdraw slopes. This was again done both by adding spouse by cohort interaction terms to the above analyses and by repeating the above set of analyses separately for middle-aged and older couples to determine if the general set of gender difference findings holds for each age group.

First, to test the interaction, the variable of cohort was added as a between subjects factor to the doubly multivariate repeated measures ANOVA; this created a spouse-by-age interaction term in the model. Results showed there was not a significant interaction, $F(4, 121) = 2.23$, *n.s.,* $\eta_p^2 = .07$. When looking at individual demand-withdraw behaviors from the resultant univariate ANOVAs, there was a significant interaction effect on withdrawal, $F(4, 124) = 4.80$, $p < .05$., $\eta p2 = .04$, and on avoidance, $F(4, 124) = 5.44$, $p < .05$., $\eta p2 = .04$. This indicates that gender differences in the trajectory of change in withdrawal and avoidance behaviors were significantly different between the age groups. For both behaviors, the rate at which husbands increased compared to wives was greater for middle-aged couples than for older couples. There were no significant interaction effects for blame or pressure.

Second, the doubly multivariate repeated measures ANOVA was repeated separately for each cohort. Results showed a significant main effect of spouse on demand-withdraw behaviors for middle-aged couples, $F(4, 59) = 3.79$, $p < .01$, $\eta_p^2 = .21$, but not for older couples, $F(4, 59) = 1.11$, *n.s.,* $\eta_p^2 = .07$. Gender differences in each of the demand-withdraw slope variables were then evaluated. A Bonferroni correction for Type I error resulted in an individual alpha of .01. Results showed that there was a significant gender difference for middle-aged couples in withdrawal, $F(1,62) = 7.28$, $p < .01$, $\eta_p^2 = .11$, such that husbands increased in this behavior at a greater rate over time than did wives. There was a trend toward significant differences for blame (wives > husbands, $p = .05$) and for avoidance (husbands > wives, $p = .06$). For older couples, there were no significant differences in the trajectory scores for any of the demand or withdraw behaviors. Table 13 gives the means and standard deviations of the demand-withdraw slope variables for each spouse within each age group, as well as a summary of the above test results.

Age group differences were also explored in the gender differentiated patterns of demand-withdraw slope scores. First, cohort was added as a between subjects factor to the repeated-measures ANOVA comparing wife-demand/husband-withdraw and husband-demand/wife-withdraw intercept values; this created a pattern-by-age interaction term in the model. Results showed that there was not a significant interaction, $F(4, 124) = 1.62$, *n.s.,* $\eta_p^2 = .01$. Second, when the repeated-measures ANOVA was conducted separately for each age group, results showed that middle-aged couples showed a significant difference in the rate of change between the two patterns, $F(1, 62) = 5.70$, $p < .05$, $\eta_p^2 = .08$, such that the wife-demand/husband-withdraw pattern increases at a significantly higher rate than the husband-demand/wife-withdraw pattern. Older couples, on the other hand, showed no significant difference in the rate of change between the two demand-withdraw patterns, $F(1, 62) = 1.03$, *n.s.,* $\eta_p^2 = .02$. These patterns of change are shown in Figure 9.

Aim 3: Demand-Withdraw and Marital Satisfaction

The third aim of the study was to examine the extent to which demand-withdraw behaviors predicted marital satisfaction, both concurrently and over time. For this set of analyses, the effect of total demand-withdraw behavior on marital satisfaction intercepts and slopes was evaluated. The effect of changes in demand-withdraw on changes in marital satisfaction was then examined. Follow-up analyses were conducted to determine if there were differences for the middle-aged versus older age group in any of these relationships.

Preliminary Growth Curve Analyses

Before testing the effect of demand-withdraw behaviors on marital satisfaction, the baseline model of marital satisfaction was first examined. As noted above, this model was the equivalent of a within-subjects regression of each spouse's satisfaction scores onto a line with a slope, intercept, and error coefficient. The baseline model can be expressed in the following Level 1 and 2 equations:

Level 1: $Y_{ij} = \pi_1\,(\text{husband}) + \pi_2\,(\text{wife}) + \pi_3\,(\text{husband time}) + \pi_4\,(\text{wife time}) + e$ *(1)*

Level 2: $\pi_1 = \beta_{10} + r_1$ *(2)*

$\pi_2 = \beta_{20} + r_2$

$\pi_3 = \beta_{30} + r_3$

$\pi_4 = \beta_{40} + r_4$

In Equation 1, Y_{ij} is the marital satisfaction score of an individual spouse of couple *j* at time *i*; π_1 is the intercept marital satisfaction score for the husband of couple *j* across assessments; π_2 is the intercept marital satisfaction score for the wife of couple *j* across assessments; π_3 is the slope of marital satisfaction scores over time for the husband of couple *j* across assessments; π_4 is the slope of marital satisfaction scores over time for the wife of couple *j* across assessments. In estimating this model, time was measured in units of years since the couple's Time 1 assessment. Each parameter of the Level 1 equation includes a constant and a unique error term (shown in Equation 2). This modeling allows the parameters of both spouses to be estimated simultaneously and accounts for the interdependence of data within spouses and within persons across time points. The baseline model was estimated successfully, meaning that

all model parameters were reliably estimated.[6] The reliability of the intercept estimates were 0.87 for husbands and 0.88 for wives. The reliability of the slope estimates were .22 for husbands and .22 for wives.

Before moving to analyzing the effect of demand-withdraw behaviors on marital satisfaction, the parameters of the intercepts and trajectories are described. The mean intercept values were 112.7 (SD = 16.4) for husbands and 112.6 (SD = 16.5) for wives. Mean slope values were significantly less than zero, indicating that satisfaction declined with time for both husbands, $t = -2.46$, $p < .05$, and for wives, $t = -2.39$, $p < .05$. On average, both husband's and wives' marital satisfaction scores decreased 0.15 points per year. Chi-square statistics (df = 125) ranging from 155.0 to 1,016.5 were all significant (all p's < .05), indicating that there is sufficient variance in all parameters to support a linear model of change in satisfaction.

To test the hypothesis that demand-withdraw behaviors predict both concurrent marital satisfaction and changes in marital satisfaction, a total demand-withdraw score (TotDW) was added to each of the four Level 2 parameters (Equation 3).

$$\begin{aligned} \text{Level 2: } \pi_1 &= \beta_{10} + \beta_{11}(\text{TotDW}) + r_1 \\ \pi_2 &= \beta_{20} + \beta_{21}(\text{TotDW}) + r_2 \\ \pi_3 &= \beta_{30} + \beta_{31}(\text{TotDW}) + r_3 \\ \pi_4 &= \beta_{40} + \beta_{41}(\text{TotDW}) + r_4 \end{aligned} \qquad (3)$$

By entering the terms in this way, the model simultaneously estimates the effect of total demand-withdraw behaviors on each of the intercept and slope parameters of marital satisfaction. Further, to determine if there was a difference between the middle-aged and older couples on these intercept and slope findings, the analysis was conducted again with the variable of age group (Age) and an interaction term between total demand-withdraw behaviors and age group (TotDW x Age) added to the model (Equation 4)[7]:

$$\begin{aligned} \text{Level 2: } \pi_1 &= \beta_{10} + \beta_{11}(\text{TotDW}) + \beta_{12}(\text{Age}) + \beta_{13}(\text{TotDW x Age}) + r_1 \\ \pi_2 &= \beta_{20} + \beta_{21}(\text{TotDW}) + \beta_{22}(\text{Age}) + \beta_{23}(\text{TotDW x Age}) + r_2 \\ \pi_3 &= \beta_{30} + \beta_{31}(\text{TotDW}) + \beta_{32}(\text{Age}) + \beta_{33}(\text{TotDW x Age}) + r_3 \\ \pi_4 &= \beta_{40} + \beta_{41}(\text{TotDW}) + \beta_{42}(\text{Age}) + \beta_{43}(\text{TotDW x Age}) + r_4 \end{aligned} \qquad (4)$$

Results are first presented for findings related to marital satisfaction intercept values, followed by findings related to marital satisfaction slope values.

Predicting Marital Satisfaction Intercepts from Demand-Withdraw Intercepts

Hypothesis 3a stated that initial levels of demand-withdraw behaviors will be negatively associated with initial levels of marital satisfaction. The results of the model (Equation 3)

[6] As noted by Johnson and colleagues (2005), reliability in growth curve modeling is defined as, "The proportion of variance in each parameter that can be treated as meaningful (i.e., true) variance" (p. 21). These reliability estimates are mathematically and conceptually different from cross-sectional definitions of reliability such as scale reliability (e.g., alpha coefficients) or interrater reliability (e.g., interclass correlation coefficients) and are not expected to be as high (Bryk & Raudenbush, 1992; Johnson et al., 2005).

[7] Following the procedures recommended by Aiken and West (1991), for all interaction terms, independent variables were centered around their means and two-way interactions were calculated from these values.

supported the hypothesis. For the full sample of couples, total demand-withdraw behaviors were negatively associated with initial levels of marital satisfaction for both husbands, $\beta = -.0.53$, $p < .05$, and wives, $\beta = -0.67$, $p < .01$.

When the age group variables were added to the model (Equation 4), results showed no main effects or interaction effects of age group on marital satisfaction for either husbands or wives. Therefore, it appears that regardless of age group, demand-withdraw behaviors are associated with initial levels of marital satisfaction. Results are summarized in Table 14. The beta weights shown in the table indicate the extent to which each predictor variable is associated with initial levels of marital satisfaction.

Predicting Marital Satisfaction Slopes from Demand-Withdraw Intercepts

Hypothesis 3a stated that initial levels of demand-withdraw behaviors will predict change in marital satisfaction. The results of the model (Equation 3) did not support the hypothesis. For the full sample of couples, total demand-withdraw behaviors were did not predict slope values of marital satisfaction for either husbands, $\beta = 0.00$, *n.s.,* or wives, $\beta = 0.01$, *n.s.*

When the age group variables were added to the model, results showed that there were no main effects or interaction effects of age group on marital satisfaction slopes for either husbands or wives. Therefore, it appears that regardless of age group, initial demand-withdraw behaviors do not predict changes in marital satisfaction over time. Results are summarized in Table 15. The beta weights shown in the table indicate the extent to which each predictor variable is associated with slope values of marital satisfaction.

Predicting Marital Satisfaction Slopes from Demand-Withdraw Slopes

As shown by the data in previous analyses, demand-withdraw behaviors themselves change over time. Therefore, to test whether change in demand-withdraw behaviors will predict change in marital satisfaction, as stated in Hypothesis 3c, the variable of total demand-withdraw slope (TotDW Slope) was added to the model (Equation 5):

$$\begin{aligned}
\text{Level 2: } \pi_1 &= \beta_{10} + \beta_{11}(\text{TotDW}) + \beta_{12}(\text{TotDW Slope}) + r_1 \qquad (5)\\
\pi_2 &= \beta_{20} + \beta_{21}(\text{TotDW}) + \beta_{22}(\text{TotDW Slope}) + r_2\\
\pi_3 &= \beta_{30} + \beta_{31}(\text{TotDW}) + \beta_{32}(\text{TotDW Slope}) + r_3\\
\pi_4 &= \beta_{40} + \beta_{41}(\text{TotDW}) + \beta_{42}(\text{TotDW Slope}) + r_4
\end{aligned}$$

This model tested whether changes in demand-withdraw predicted changes in marital satisfaction over after controlling for initial levels of demand-withdraw. The results indicated that demand-withdraw slopes do not have a significant effect on the slope of marital satisfaction for either husbands, $\beta = 0.10$, *n.s.,* or wives, $\beta = 0.05$, *n.s.*

To determine if these results were the same for both middle-aged and older couples, the variables of age group (Age) and an interaction term between total demand-withdraw slope and age group (TotDW Slope x Age) were added to each level of the model. Results showed that there were no main effects of demand-withdraw slopes or age group on marital satisfaction slopes. There was a significant effect for the interaction between demand-withdraw slopes and age group on the slope of wives' marital satisfaction, $\beta = -0.13$, $p < .05$. This indicates that, for wives, the effect that change in demand-withdraw behaviors has upon change in marital satisfaction depends the age group of the couple. Specifically, for the older cohort but not the middle-aged cohort, greater increases in demand-withdraw behaviors over time predict greater

decreases in wives' marital satisfaction over time. Results are summarized in Table 16. The beta weights shown in the table indicate the extent to which each predictor variable is associated with slope values of marital satisfaction.

Aim 4: Demand-Withdraw vs. Other Predictors of Marital Satisfaction

The final aim of this study was to examine whether demand-withdraw behaviors predicted marital satisfaction above and beyond other known predictors of marital satisfaction: self-reported affect, emotion behaviors, and physiological arousal. Given that there was no effect of age group on marital satisfaction intercepts or slopes in relation to initial levels of demand-withdraw behaviors, this aim was addressed using the full sample of 126 couples and did not evaluate age group differences.

To evaluation the effect of demand-withdraw behaviors on marital satisfaction in relation to these other predictor variables, a sequence of analyses was conducted by adding demand-withdraw, another variable, and their interaction term to the baseline model of marital satisfaction. For example, to evaluate how initial demand-withdraw behaviors predicted marital satisfaction intercepts and slopes in relation to physiological arousal, the variables of total demand-withdraw (TotDW), average physiological arousal level (Physio), and an interaction term between total demand-withdraw behaviors and psychological arousal (TotDW x Physio) were added to the baseline predictor model (Equation 6):

$$
\begin{aligned}
\text{Level 2: } \pi_1 = {} & \beta_{10} + \beta_{11}(\text{Physio}) + \beta_{12}(\text{TotDW}) + \beta_{13}(\text{TotDW x Physio}) + r_1 \qquad (6)\\
\pi_2 = {} & \beta_{20} + \beta_{21}(\text{Physio}) + \beta_{22}(\text{TotDW}) + \beta_{23}(\text{TotDW x Physio}) + r_2\\
\pi_3 = {} & \beta_{30} + \beta_{31}(\text{Physio}) + \beta_{32}(\text{TotDW}) + \beta_{33}(\text{TotDW x Physio}) + r_3\\
\pi_4 = {} & \beta_{40} + \beta_{41}(\text{Physio}) + \beta_{42}(\text{TotDW}) + \beta_{43}(\text{TotDW x Physio}) + r_4
\end{aligned}
$$

By entering the terms in this way, the model simultaneously estimates the effect of demand-withdraw behaviors, physiological arousal, and the interaction between the two variables on each of the intercept and slope parameters of marital satisfaction. This analysis was then repeated for the variables of couples' total negative affect ratings and couples' total negative emotion behavior ratings. Results are first presented for findings related to marital satisfaction intercept values, followed by findings related to marital satisfaction slope values.

Predicting Marital Satisfaction Intercepts from Behavior Intercepts

Hypothesis 4a stated that initial demand-withdraw behaviors will predict initial marital satisfaction above and beyond other known predictors of lower levels of marital satisfaction (levels of physiological arousal, self-reported negative affect, and positive and negative emotion behaviors). The results comparing the effect of demand-withdraw behaviors to each of these respective variables on marital satisfaction intercepts are presented below and are summarized in Table 17. The beta weights shown in the table indicate the extent to which each predictor variable is associated with initial levels of marital satisfaction.

Physiological Arousal. Total initial demand-withdraw behaviors were evaluated in relation to couples' average level of physiological arousal as predictors of marital satisfaction intercepts. Results showed no main effects for either variable for both husbands and wives. There was, however, a significant effect for the interaction between total demand-withdraw behaviors and physiological arousal. This was true for both husbands, $\beta = -6.11$, $p < .001$, and wives, $\beta = -6.01$, $p < .001$.

Figures 10A and 10B show the interactions between total demand-withdraw behavior and physiological arousal for husbands and wives, respectively. Predicted values for this interaction were computed from the regression equations by substituting scores one standard deviation above and below the independent variables in the analyses. These figures indicate that for couples showing low levels of demand-withdraw, higher physiological arousal is associated with higher levels of marital satisfaction. Conversely, for couples showing high levels of demand-withdraw, higher physiological arousal is associated with lower levels of marital satisfaction.

Self-Reported Negative Affect. Total initial demand-withdraw behaviors were evaluated in relation to couples' total periods of self-reported negative affect as predictors of marital satisfaction intercepts. For husbands, there was a main effect of negative affect, $\beta = -3.47$, $p < .05$. For wives, there were main effect for both negative affect, $\beta = -2.96$, $p < .05$, and for total demand-withdraw behaviors, $\beta = -3.02$, $p < .05$. Interpretation of these main effects must be qualified, however, by the presence of significant interaction effects. There was a significant interaction between total demand-withdraw behaviors and negative affect for both husbands, $\beta = -3.51$, $p < .05$, and for wives, $\beta = -2.84$, $p < .05$.

Figures 10C and 10D show the interactions between total demand-withdraw behavior and self-reported negative affect for husbands and wives, respectively. Both figures indicate that when a couple reports relatively low levels of negative affect, the both husbands' and wives' marital intercept scores remain approximately the same, regardless of whether the couple is also expressing relatively low versus relatively high levels of demand-withdraw behaviors. However, when a couple reports relatively high levels of negative affect, high levels of demand-withdraw predict a significantly lower level of initial marital satisfaction.

Emotion Behavior. Total initial demand-withdraw behaviors were evaluated in relation to couples' total periods of negative emotion behaviors. Results showed a main effect of negative emotion behaviors for both husbands, $\beta = -4.89$, $p < .01$, and wives, $\beta = -3.79$, $p < .05$; there were no main effect for demand-withdraw behaviors. Interpretation of these main effects must be qualified, however, by the presence of significant interaction effects. There was a significant interaction between total demand-withdraw behaviors and total negative emotion behaviors for both husbands, $\beta = -3.23$, $p < .05$, and for wives, $\beta = -4.12$, $p < .01$.

Figures 10E and 10F show the interactions between total demand-withdraw behavior and negative emotion behaviors for husbands and wives, respectively. Both figures indicate that when a couple shows relatively low levels of negative emotion behavior, the both husbands' and wives' marital intercept scores remain approximately the same, regardless of whether the couple is also expressing relatively low versus relatively high levels of demand-withdraw behaviors. However, when a couple displays relatively high levels of negative emotion behavior, high levels of demand-withdraw predict a significantly lower level of initial marital satisfaction. Of note, this parallels the self-reported negative affect findings.

Predicting Marital Satisfaction Slopes from Behavior Intercepts

Hypothesis 4b stated that initial demand-withdraw behaviors will predict changes in marital satisfaction above and beyond other known predictors of lower levels of marital satisfaction (levels of physiological arousal, self-reported negative affect, and negative emotion behaviors). The results comparing the effect of demand-withdraw behaviors to each of these respective variables on marital satisfaction slopes are presented below and are summarized in Table 18. The beta weights shown in the table indicate the extent to which each predictor variable is associated with trajectories of change of marital satisfaction.

Physiological Arousal. Total initial demand-withdraw behaviors were evaluated in relation to couples' average level of physiological arousal as predictors of marital satisfaction slopes. Results showed no main effects or interaction effects for both husbands and wives, indicating that neither initial demand-withdraw behaviors, average levels of physiological arousal, or the interaction between the two variables significantly predicted the trajectory of change in marital satisfaction over time.

Self-Reported Negative Affect. Total initial demand-withdraw behaviors were evaluated in relation to couples' total periods of self-reported negative affect as predictors of marital satisfaction slopes. Results showed no main effects or interaction effects for both husbands and wives, indicating that neither initial demand-withdraw behaviors, the total amount of negative affect reported by spouses, or the interaction between the two variables significantly predicted the trajectory of change in marital satisfaction over time.

Emotion Behavior. Total initial demand-withdraw behaviors were evaluated in relation to couples' total periods of observed negative emotion behavior as predictors of marital satisfaction slopes. Results showed no main effects or interaction effects for either spouse, indicating that neither initial demand-withdraw behaviors, the total amount of negative emotion behavior, or the interaction between the two variables significantly predicted the trajectory of change in marital satisfaction over time.

DISCUSSION

The demand-withdraw interaction pattern is a common, deleterious pattern in which one spouse, typically the wife, blames or pressures while the other spouse, typically the husband, avoids or withdraws (Christensen, 1988). The overarching goal of the present study was to determine how demand-withdraw behaviors, and their association with lower levels of marital satisfaction, may change as couples move into later stages of life. The study additionally evaluated the effect of these behaviors on marital dissatisfaction in relation to other known predictors (e.g., physiological arousal, self-reported negative affect, and negative emotion behaviors) to determine whether demand-withdraw behaviors have a unique effect on marital satisfaction outcomes. To evaluate how demand-withdraw behaviors, and their relationship with marital satisfaction, changed with age, hypotheses related to these aims were assessed both cross-sectionally (i.e., by comparing middle-aged couples to older couples) and longitudinally (i.e., by examining trajectories of change over time).

Age Differences in Demand-Withdraw Behaviors

The first aim of the study was to evaluate age differences in demand-withdraw behaviors. It was hypothesized that middle-aged couples would show higher initial levels of demand-withdraw behaviors than would older couples. Findings showed a much more nuanced pattern of differences. Middle-aged couples showed higher amounts of pressure behaviors than did older couples, as well as a trend toward more blame behaviors. Conversely, older couples showed higher amounts of avoidance behaviors than did middle-aged couples.

With regard to the pattern of change over time, contrary to what was hypothesized, results showed that the sample overall showed an increase in demand-withdraw behaviors over time. This trend was significant only for the individual behaviors of withdrawal and avoidance. Also contrary to what was hypothesized, there were age-group differences in the trajectories of

change such that older couples increased in demand-withdraw behaviors at a greater rate than did middle-aged couples. This difference appeared be largely driven by steeper increases in avoidance behaviors in older couples.

Bringing together the cross-sectional and longitudinal findings on demand-withdraw behaviors, it appears that demand behaviors are less prevalent in older couples than in middle-aged couples, but avoidance behaviors are more common in older couples than in middle-aged couples. Moreover, for both middle-aged and older couples, demand-withdraw behaviors overall appear increase at a significant rate over time, a trend which appears to be driven by ever-increasing avoidance behaviors.

At face value, this finding seems to contradict the socioemotional selectivity theory and other findings that suggest couples move toward lower levels of conflict behaviors later in life (e.g., Carstensen et al., 1996; Levenson et al., 1993). To best understand this finding, however, it is important to consider the nature of avoidance behaviors during conflict. Avoidance is characterized by a spouse actively avoiding discussing the conflict topic, either by hesitating, changing the topic, or diverting attention (Heavey et al., 1996). Avoidance behaviors are typically considered to be a maladaptive response to conflict in that they interfere with the successful resolution of the topic at hand. As such, this set of behaviors has long been considered an essential component of the deleterious demand-withdraw communication pattern.

It may be that for long-term married spouses in later stages of life, such avoidance behaviors shift from a constituting a maladaptive strategy to a neutral or even adaptive strategy. While not facilitating conflict resolution per se, avoidance behaviors may have the effect of moving the discussion from that of a toxic area of conflict to a more benign topic. Observationally, during conflict discussions, raters noticed that older couples engaging in such avoidance behaviors would say things along the lines of, "We have had this conversation a million times, let's just agree to disagree. Now what do you want to do for dinner?" Instead of this generating a negative response, this tactic often led to a conversation topic shift to a neutral, or even pleasant, area of discussion. This trend is reflected by the fact that both husbands' and wives' avoidance behaviors were negatively or nonsignificantly correlated with their partner's blame and pressure behaviors, but strongly positively correlated with their partner's own avoidance behaviors (see Table 5). Perhaps in at younger ages, when there are a different and newer set of issues to work out between partners, avoidance evokes more negative and destructive reaction patterns. For middle-aged and older couples, it appears to play an increasingly prevalent, and perhaps relatively functional, role in the management of conflict.

Gender Differences in Demand-Withdraw Behaviors

The second aim of the study was to evaluate whether commonly observed gender differences in demand-withdraw behaviors were replicated in the sample of middle-aged and older couples, and whether these differences changed over time. It was hypothesized that wives would demonstrate more initial demand behaviors than husbands, and husbands would demonstrate more initial withdraw behaviors than wives. When the full sample of middle-aged and older couples was evaluated, the expected pattern of gender differentiation in initial levels of demand-withdraw behaviors was supported. Specifically, wives exhibited higher levels of demand behaviors (blame and pressure), whereas husbands exhibited higher levels of withdraw behaviors (withdrawal, and a trend toward more avoidance). When examined together as a gender-differentiated pattern, as expected, couples demonstrated significantly higher levels of the wife-demand/husband-withdraw pattern than the reverse.

Secondary analyses were conducted to determine if there were age group differences in the observed pattern of gender differentiation in initial demand-withdraw behaviors. While both age groups showed higher levels of the wife-demand/husband-withdraw behavior than the reverse, this difference was more pronounced for older couples. Similarly, when looking at demand and withdraw behaviors individually, older couples showed a much more polarized pattern of wives demanding and husbands withdrawing. Only one individual behavior met statistical significance for a spouse-by-age interaction: avoidance. Specifically, the difference between husbands and wives in avoidance was more pronounced with age.

With regard to trajectories of changes in gender differentiation, it was hypothesized that husband and wives would evidence different slopes in demand-withdraw behaviors such that they would show convergence over time. Results for the full sample did not support this hypothesis—there was little difference between husbands and wives in the trajectory of change in demand-withdraw behaviors, both when considered as individual behaviors or as part of the gender differentiated pattern. The only individual behavior to show a significant gender difference in the trajectory of change was blame, with wives increasing in the behavior at greater rate than husbands. Given that wives had higher initial levels of blame behaviors than husbands, this indicates increasing divergence rather than convergence over time.

When broken down by age group, significant differences emerged, though not in the expected direction. For middle-aged couples, the wife-demand/husband-withdraw pattern increased at a significantly higher rate than the husband-demand/wife-withdraw pattern. Again, given that the wife-demand/husband-withdraw pattern already had a higher initial level, this finding indicated that the couples became increasingly polarized over time. Older couples, who showed higher initial levels of polarization, did not show any gender differences in demand-withdraw behavior slopes, indicating that the gender differences maintained relative stability over time. There were significant spouse-by-age interactions for withdrawal and avoidance behaviors. Specifically, middle-aged spouses show more pronounced differences in these behaviors than do older spouses, with husbands showing greater trajectories of change in each than their wives.

What do these findings mean? First, these findings run counter to the theory that husbands and wives become more similar in their behaviors over time (e.g., Gutmann, 1997). These findings suggest precisely the opposite—over time, husbands and wives appear to evidence greater polarization in demand-withdraw behaviors. This is in accordance with the notion that the demand-withdraw pattern can function as a self-perpetuating cycle wherein gender differences grow larger as partners become more entrenched in their respective roles over time. This is in line with the conclusion reached by Eldridge et al. (2007), who found that couples in shorter marriages (and who tended to be younger) showed more flexibility in demand-withdraw behaviors during conflict discussions. It appears that by the time couples reach approximately a later life stage (e.g., from age 60 on), they maintain relative consistency in their overall—already polarized—level of gender differentiation in demand-withdraw behaviors.

Demand-Withdraw and Marital Satisfaction

The third aim of the study was to evaluate whether demand-withdraw behaviors were associated with lower levels of concurrent marital satisfaction, as well as whether they predicted changes in marital satisfaction over time. As hypothesized, findings showed that initial levels of total demand-withdraw behaviors were negatively associated with initial levels of marital satisfaction for both husbands and wives, such that higher levels of demand-withdraw behaviors

were associated with lower levels of marital satisfaction. There was no effect of age group on this outcome, indicated that the relationship between demand-withdraw behaviors and marital satisfaction did not change as a function of whether a couples was middle-aged or older.

Contrary to what was hypothesized, initial levels of total demand-withdraw behaviors did not predict changes in marital satisfaction over time for the full sample of couples. This was true for both husbands and wives. There was no effect of age group on this outcome, indicating that regardless of age group, initial demand-withdraw behaviors do not predict trajectories of change in marital satisfaction over time.

Finally, it was hypothesized that changes in demand-withdraw behaviors would predict changes in marital satisfaction over time. For the full sample of couples, this hypothesis was not supported for either husbands or wives. When age was added to the model, however, an interaction effect emerged. It appears that for wives in the older cohort, increasing levels of demand-withdraw behavior over predict a steeper slope of decrease in marital satisfaction.

These results are consistent with past studies showing a negative concurrent association between demand-withdraw behaviors and relationship satisfaction (e.g., Christensen, 1988; Christensen et al., 2006; Eldridge et al., 2007; Heavey et al., 1993; Kurdek, 1995; Noller et al., 1994; Vogel et al., 1999). In terms of implications, these findings suggest that the negative association remains intact through the life course. Unfortunately, this study did very little to clarify the inconsistent findings regarding the effect of demand-withdraw on marital satisfaction over time. As previously noted, there has been a great deal of uncertainty as to whether and how behaviors such as demand-withdraw influence trajectories of marital satisfaction. One explanation for why no effect was found in the present study is that the focus was on demand-withdraw behaviors at the composite level (e.g., total demand-withdraw). This may conflate the influence of negative behaviors such as blame with less destructive behaviors like avoidance (which, as noted, for older couples may not actually be negatively associated with marital satisfaction). While demand-withdraw behaviors are of particular interest because of the manner in which they can exist as a self-perpetuating pattern, it may be useful in future studies to examine the influence of the constitute components on trajectories of marital satisfaction. Such future studies may also help uncover why increasing levels of demand-withdraw behaviors over time predicted decreases in marital satisfaction only for wives in the older cohort.

Finally, these results highlighted the fact that it can be important to consider how a predictor itself changes in predicting an outcome like marital satisfaction. As noted by Fincham, Grych, and Osborne (1994), developmental patterns should be conceptualized in terms of reciprocal patterns of change. In the present study, that meant examining whether change in the frequency with which demand-withdraw behaviors were manifest during conflict was linked to change in marital satisfaction. While this was only a factor in predicting wives' marital satisfaction in the older cohort, it may also be that a more fine-grained analysis of changes in individual demand and withdraw behaviors would have allowed more predictive specificity. If changes in a specific factor such as blame or withdrawal are understood to influence changes in a critical outcome such as marital satisfaction, it would offer a prime target for the development of effective marital interventions.

Demand-Withdraw vs. Other Predictors of Marital Satisfaction

The fourth aim of the study was to evaluate demand-withdraw behaviors in relation to other factors known to be associated with lower levels of marital satisfaction. It was hypothesized that, for the full sample of couples, initial demand-withdraw behaviors would

predict lower initial levels of marital satisfaction over and above the following other known predictors: physiological arousal, self-reported negative affect, and negative emotion behaviors.

Results suggested there was only a main effect for demand-withdraw behaviors on marital satisfaction in comparison to negative self-reported affect, and this was true only for wives. That is, total demand-withdraw behaviors predicted lower levels of wives' initial marital satisfaction over and above total negative self-reported affect. This effect was not found for husbands. And contrary to the hypothesis, demand-withdraw behaviors did not predict initial levels of marital satisfaction over physiological arousal or over negative emotion behaviors, respectively.

Most notably, for both husbands and wives, there was a significant interaction effect between demand-withdraw and each of the other marital satisfaction predictors. Specifically, higher levels of demand-withdraw exhibited in the context of higher levels of physiological arousal, greater self-reported negative affect, and greater levels of negative emotion behavior were associated with significantly lower levels of initial marital satisfaction, respectively.

With regard to predicting changes in marital satisfaction, contrary to what was hypothesized, there were no significant main effect or interaction effects for demand-withdraw behaviors or the other predictor variables on marital slopes. Therefore, it appears that while the factors of demand-withdraw behaviors, physiological arousal, self-reported negative affect, and negative emotion behaviors exhibited during conflict conversation are associated with current levels of marital satisfaction, they are not significant predictors of the longitudinal course of marital satisfaction.

These findings indicate the importance of investigating demand-withdraw behaviors in relation to other factors. Specifically, even after controlling for main effects, the interaction between demand-withdraw and the other respective predictor variables accounted for variance in marital satisfaction. This indicates that to really understand the role demand-withdraw behaviors play in affecting the degree to which a person feels satisfied in a marriage, it is also important to know whether know behaviors were embedded in an interaction in which the spouses experienced high levels of physiological arousal, that were perceived as affectively negative by the spouses, or that were characterized by objectively high levels of negative emotion behaviors such as contempt or anger.

Strengths, Limitations, and Future Directions

The present study had many strengths as well as several limitations, each of which points to avenues for future research. One area of strength pertained to the study design. First, this study benefited from a design that allowed age differences to be examined both cross-sectionally and longitudinally. Second, the present study assessed data from both spouses instead of just relying on a report from one spouse to represent the marriage. Third, the data was collected at three time points over the course of approximately 13 years (and marital satisfaction at five time points over the course of approximately 20 years). Few studies have obtained observational data over multiple time points, and fewer still have spanned this long a time. One limitation related to data collection pertained to the long time frame. Over this duration, there were few contacts made with the couples in the long intervals between time points. Future research would benefit from collecting data at shorter intervals of time. This would not only provide more data points for modeling longitudinal change, but would maintain more consistent contact with the study sample and may alleviate issues of attrition through loss of contact.

The present study examined demand-withdraw behaviors in middle-aged and older couples, a population that is generally underrepresented in the marital literature. Further, this sample also represented long-term married couples. Thus, this study provides a unique view into communication processes in couples who "survived" through the earlier years of marriage, the more common time for marriages to end (e.g., Gottman & Levenson, 2000). These same factors also pose several limitations, however. The present study did not include a younger cohort of couples. Spouses at earlier stages of life course development tend to have different priorities and face different challenges than do middle-aged or older couples. Future studies would benefit from including couples from a wider range of age groups. Further, as previously noted, the present study confounded marital duration with age. While the limitation marital durations were imposed purposely in order to create homogenous samples representative of their respective life stages, future studies may want to examine expand to include, for example, older couples who are newly married. Finally, although the sample was chosen to reflect a fairly wide range of satisfaction (see Levenson et al., 1994), this is a study of couples who, by and large, did not divorce—the divorce rate for the initial sample of 156 couples was five percent, which is significantly lower than the national average. This relegates the implications of the findings to predicting levels of marital dissatisfaction, not of marital dissolution.

Another strength of the present study was that it used a behavioral measure of demand-withdraw behaviors. The system used to quantify these behaviors is a proven method of observational evaluation and has been used in a number of studies by various past researchers. This observational measure provides an objective look at the extent to which spouses engage in each of the behaviors that comprise demand-withdraw communication. One limitation of this study, however, is that there were not concurrent self-report measures of demand-withdraw. The primary questionnaire measure used to evaluate demand-withdraw, the Couples Questionnaire Pattern (Christensen & Sullaway, 1984), assesses how much each spouse perceives the couple generally engages in either the wife-demand/husband-withdraw pattern or the husband-demand/wife-withdraw pattern. The observational measure offered a snap-shot of what couples actually do when engaging in a conflict discussion, whereas the self-report measures would offer an index of what they perceive they do in general. Future studies would benefit from assessing demand-withdraw behavior via both observational and self-report measures.

The present study is one of the only studies to examine demand-withdraw behaviors simultaneously in relation to other known predictors of marital dissatisfaction, including self-reported affect, emotion behaviors, and physiological arousal. The findings showed important interaction effects on current levels of marital satisfaction between demand-withdraw and these other predictor variables. Of note, the present study focused exclusively on factors known to predict lower levels of marital satisfaction. There are, of course, behaviors which may be co-occurring which are associated with higher levels of marital satisfaction, such as problem-solving and demonstrating positive emotion behaviors (e.g., Carstensen et al., 1995; Henry et al., 2007; Johnson et al., 2005). For example, perhaps couples who show high levels of demand-withdraw but also express high levels of warmth and humor are buffered against the deleterious effects on marital satisfaction. Incorporating a more complete set of such variables into the model may enhance its ability to predict which couples have a more positive versus negative trajectory of marital satisfaction.

With regard to generalizability, in addition to the aforementioned limitation regarding age and marital duration, there are some limitations to populations to whom these findings can be applied. The original sample was representative of individuals in their age groups in the San

Francisco Bay area. Due to the nature of the area from which these couples were recruited, this representative sample is over-represented by spouses who are Caucasian, educated, and of relatively high socioeconomic status (see Levenson et al., 1994). Thus, findings from these couples may not generalize to other ethnic and socioeconomic groups.

A final limitation pertains to an issue that challenges any longitudinal study of marriages, which is how to interpret sample attrition. One primary reason for attrition was that one or both spouses passed away. Not surprisingly, this occurred disproportionately for the older couples over time as compared to the middle-aged couples. It is possible that this factor served to naturally select out couples who were less satisfied and/or engaged in more maladaptive communication patterns. Specifically, past research has shown a relationship between marital functioning and health outcomes. For example, negative marital interactions have been associated with decrements in health down the line (Kiecolt-Glaser & Newton, 2001; Robles & Kiecolt-Glaser, 2003). Thus, it may be that couples who were most affected by behaviors like demanding and withdrawing did not remain in the study sample. Such a trend may have particularly affected the pattern of change observed in demand-withdraw behaviors and the ability to detect a predictive relationship between demand-withdraw behaviors and longitudinal changes in marital satisfaction.

Conclusion

Demand-withdraw has long been described as one of the central, most intractable, and destructive patterns of marital interaction (Heavey et al., 1993). This study suggested that, despite research demonstrating that couples undergo many positive transitions in later in life with regard to the emotional landscape of their relationship (Carstensen et al., 1996), this destructive set of behaviors does not go away, and its presence is still associated with lower levels of marital satisfaction across the life span. This study did, however, uncover some interesting shifts in the manifestation of demand-withdraw behaviors and its relationship to marital satisfaction. Avoidance behaviors increase over time, which may suggest an important developmental shift in the way such behaviors are manifest within this communication pattern. Gender differentiation appears to become greater rather than diminish, suggesting that demand-withdraw roles become more rigid rather than more flexible over time. Further, while demand-withdraw behaviors appear to be associated with lower levels of concurrent marital satisfaction levels, particularly in conjunction to other negative aspects of marital communication, they don't predict incrementally worse marital satisfaction over time. While there are still questions to answer about the developmental course and correlates of the demand-withdraw communication pattern, the present study was a step forward in characterizing demand-withdraw behaviors in middle-aged and older couples, evaluating the way these behaviors change over time, and exploring age-related changes in the relationship of demand-withdraw to marital satisfaction.

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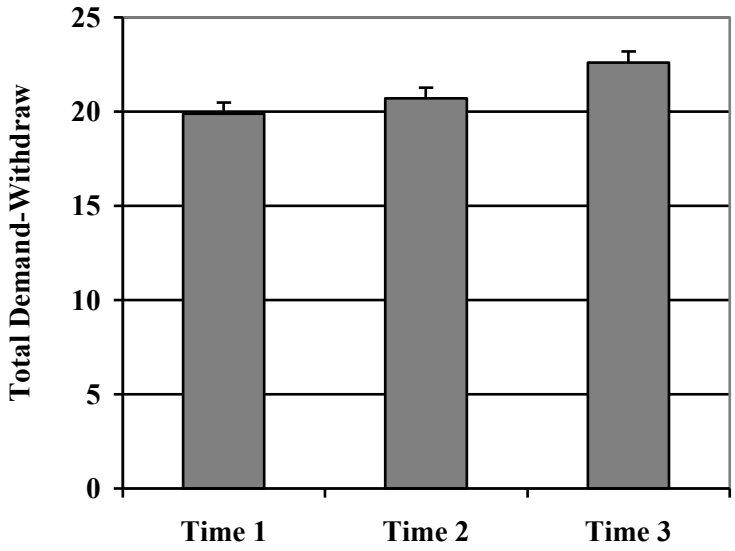
Table 1: Couple Attrition across the Time Points

	Time 1 (1989)		**Time 2 (1995)**		**Time 3 (2001)**		**Time 4 (2007)**		**Time 5 (2009)**	
	Mid-Age	Older	Mid-Age	Older	Mid-Age	Older	Mid-Age	Older	Mid-Age	Older
Participated in Lab Session	**82**	**74**	**62**	**63**	**50**	**40**	***n/a***	***n/a***	***n/a***	***n/a***
Completed Questionnaires	82	74	67	65	53	48	30	26	29	17
Separated or Divorced	0	0	5	0	8	0	8	0	8	0
One or Both Spouses Deceased	0	0	4	6	7	19	10	35	10	35
Declined or Lost Contact	0	0	6	3	14	7	34	13	35	22

Table 2: Demographic Characteristics of Initial Sample and Final Sample of Couples

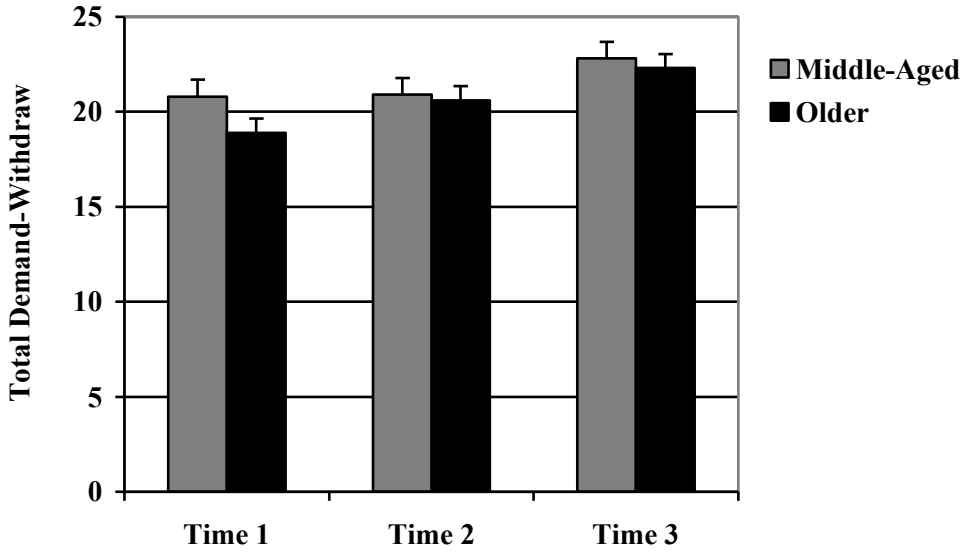
	Initial Sample		Final Sample	
	Middle-aged	Older	Middle-aged	Older
N	82	74	63	63
Mean age – husbands (SD)	44.9 (2.9)	64.3 (3.1)	44.6 (2.8)	64.0 (3.0)
Mean age – wives (SD)	43.8 (2.9)	62.8 (3.3)	43.7 (2.9)	62.5 (3.0)
Mean length of marriage (SD)	21.3 (3.5)	40.5 (3.7)	21.1 (3.5)	40.2 (3.4)
Mean number of children (SD)	2.2 (1.0)	3.2 (1.4)	2.1 (1.0)	3.3 (1.4)
Percent with children at home	78.0%	14.9%	77.8%	14.3%
Percent of husbands working full or part-time	98.8%	91.9%	98.4%	93.7%
Percent of wives working full or part-time	85.4%	66.2%	85.7%	63.5%
Percent European-American	80.5%	91.9%	80.2%	95.2%
Mean Time 1 Marital Satisfaction (SD)	108.7 (16.0)	114.1 (16.0)	110.4 (15.7)	114.3 (16.3)

Figure 1: Total Demand-Withdraw Behaviors over Time



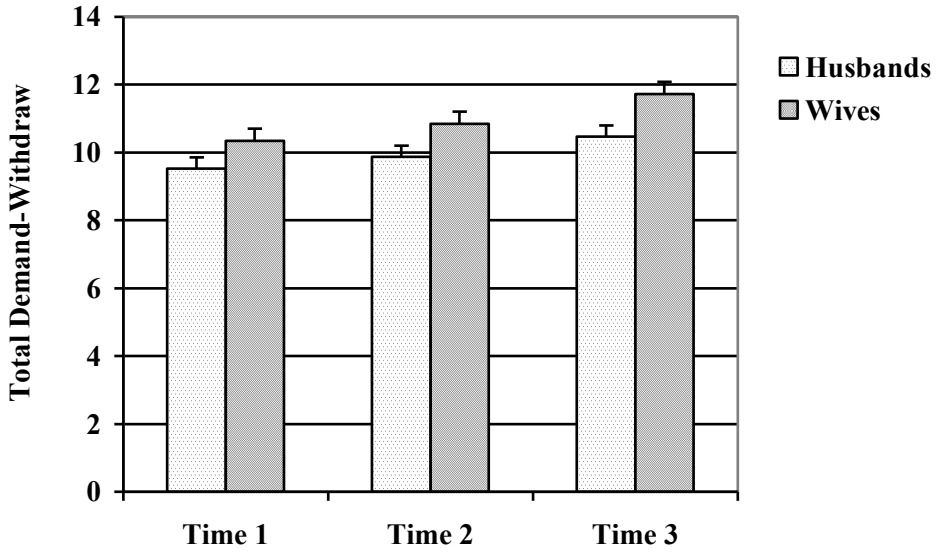
This figure shows the mean scores for total demand-withdraw behaviors for the full sample across the three time points. These scores demonstrate a linear pattern of increase over time.

Figure 2: Total Demand-Withdraw Behaviors over Time by Age Group



This figure shows the mean scores for total demand-withdraw behaviors for the middle-aged couples (N = 63) and older couples (N = 63) across the three time points.

Figure 3: Total Demand-Withdraw Behaviors over Time by Spouse



This figure shows the mean scores for total demand-withdraw behaviors for the full sample of husbands (N = 126) and wives (N = 126) across the three time points.

Table 4: Correlations between Demand and Withdraw Behaviors by Spouse

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. T 1: Blame	-	.61***	.01	-.17	.35***	.23*	-.02	-.08	.55***	.19*	.07	.10
2. T 1: Pressure	.60***	-	-.12	-.18*	.24**	.45***	-.18*	-.15	.33***	.25**	-.09	.01
3. T 1: Withdrawal	.08	-.04	-	.40***	.02	.00	.39***	.10	.06	-.03	.41***	.19*
4. T 1: Avoidance	-.06	-.06	.28**	-	-.05	.02	.09	.26**	-.03	-.08	.26**	.38***
5. T 2: Blame	.45***	.40***	.01	-.05	-	.60***	.02	-.21*	.50***	.28**	.01	-.06
6. T 2: Pressure	.31***	.39***	-.06	.02	.76***	-	-.02	-.22*	.24**	.29**	.00	-.05
7. T 2: Withdrawal	-.01	-.01	.47***	.09	.01	-.08	-	.24**	.06	.01	.29**	.03
8. T 2: Avoidance	-.03	.01	.10	.26**	.00	.04	.23**	-	-.08	-.03	.12	.21*
9. T 3: Blame	.40***	.36***	.04	-.03	.24**	.22*	.01	-.11	-	.59***	.12	.01
10. T 3: Pressure	.33***	.24**	.01	-.08	.03	.08	.00	-.02	.64*	-	-.04	-.05
11. T 3: Withdrawal	.03	-.07	.49***	.26**	-.01	-.10	.23*	-.03	-.04	-.29**	-	.25**
12. T 3: Avoidance	-.03	-.08	.294**	.38***	-.17	-.13	.10	.19*	-.11	-.27**	.39***	-

$p < .05$, $p < .01$**, $p < .001$****

Correlations within husbands' and wives' demand and withdraw behaviors. Husbands are below the diagonal, wives are above the diagonal. Data are from the sample of 126 husbands and wives at each of the three time points of behavioral observation.

Table 5: Correlations between Husband and Wife Demand-Withdraw Behaviors

Variable	Wife Blame	Wife Pressure	Wife Withdraw	Wife Avoidance
Time 1				
Husband Blame	.43***	.20*	-.01	.02
Husband Pressure	.22*	.16	.10	.07
Husband Withdrawal	.14	.28**	.25**	.15
Husband Avoidance	-.18*	-.17	.30**	.69***
Time 2				
Husband Blame	.42***	.22*	.13	-.06
Husband Pressure	.13	.05	.18*	.00
Husband Withdrawal	.11	.25**	.24**	-.02
Husband Avoidance	-.13	-.07	.15	.63***
Time 3				
Husband Blame	.34***	.22*	-.04	-.14
Husband Pressure	.09	.01	-.04	-.26**
Husband Withdrawal	.10	.20	.33***	.15
Husband Avoidance	.00	-.01	.23*	.78***

$p < .05$, $p < .01$**, $p < .001$****

Correlations between husbands' and wives' demand and withdraw behaviors across the three time points.

Table 6: Correlations between Total Demand-Withdraw Behaviors, other Predictor Composites, and Marital Satisfaction

Variable	1	2	3	4	5
1. Total Demand-Withdraw Behaviors	-				
2. Average Physiological Arousal	.13	-			
3. Total Negative Affect Periods	.19*	.08	-		
4. Total Negative Emotion Behaviors	.46***	.21*	.42***	-	
5. Marital Satisfaction Score	-.27**	-.18*	-.24**	.40***	-

$p < .05$, $p < .01$**, $p < .001$****

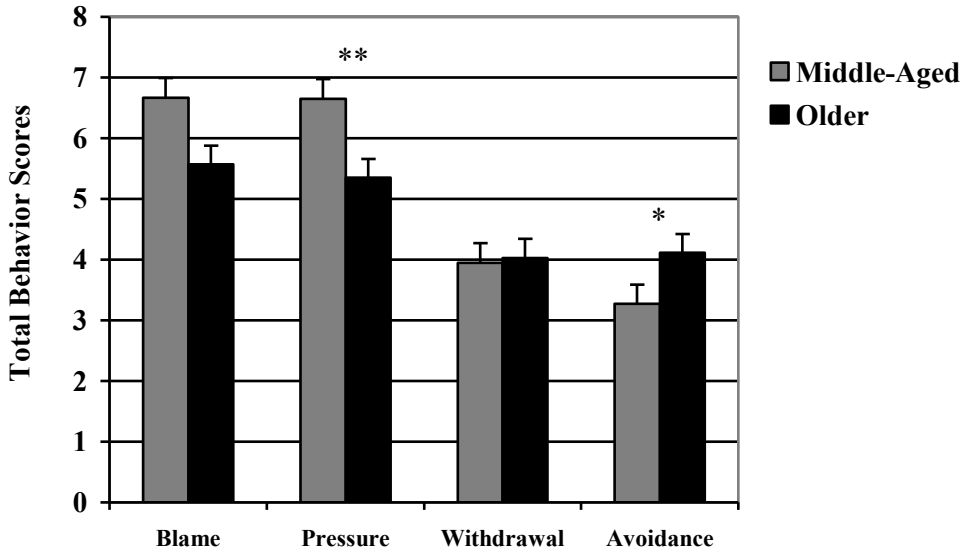
Correlations between couple-level predictors of marital satisfaction and couples' marital satisfaction scores.

Table 7: Age Differences in Demand-Withdraw Intercepts

	MA Mean *(SD)*	Older Mean *(SD)*	F Score	η_p^2
Multivariate Model			2.50*	.08
<u>Couple Scores – Intercepts</u>				
Total Blame	6.67 *(3.5)*	5.57 *(2.9)*	3.66	.03
Total Pressure	6.65 *(2.9)*	5.35 *(2.6)*	6.98**	.05
Total Withdrawal	3.95 *(1.8)*	4.03 *(1.9)*	0.63	.00
Total Avoidance	3.27 *(2.0)*	4.11 *(2.5)*	4.23*	.03

$p < .05$, $p < .01$**, $p < .001$****

Figure 4: Age Differences in Demand-Withdraw Intercepts



p < .05, p < .01**, p < .001****

This figure shows the mean intercept scores for individual demand and withdraw behaviors for middle-aged and older couples, respectively.

Table 8: Significance of Demand-Withdraw Behavior Slopes

	Full Sample *Mean (SD)*	*t Score*
Total Demand-Withdraw Slope	0.18 *(0.4)*	4.51***
<u>Couple Scores – Slopes</u>		
Total Blame	0.04 *(0.3)*	1.67
Total Pressure	0.01 *(0.2)*	0.52
Total Withdrawal	0.04 *(0.2)*	2.77**
Total Avoidance	0.11 *(0.3)*	4.90***

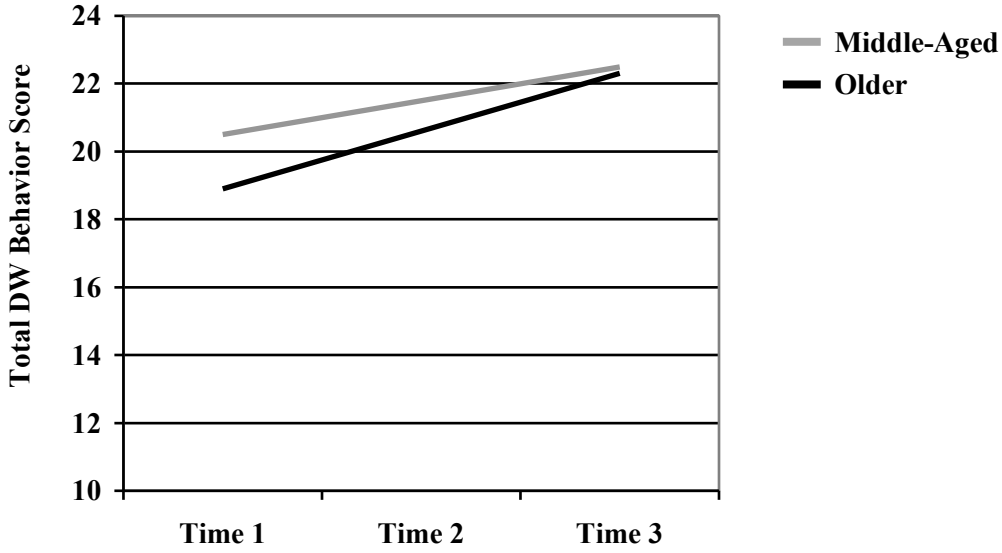
$p < .05$, $p < .01$**, $p < .001$****

Table 9: Age Differences in Demand-Withdraw Slopes

	MA Mean *(SD)*	Older Mean *(SD)*	F Score	η_p^2
Multivariate Model			3.87**	.12
<u>Couple Scores – Slopes</u>				
Total Blame	0.05 *(0.3)*	0.03 *(0.2)*	3.26	.03
Total Pressure	-0.02 *(0.2)*	0.04 *(0.2)*	1.30	.01
Total Withdrawal	0.04 *(0.2)*	0.03 *(0.1)*	0.17	.00
Total Avoidance	0.07 *(0.2)*	0.14 *(0.3)*	12.90***	.10

$p < .05$, $p < .01$**, $p < .001$****

Figure 5: Age Differences in Demand-Withdraw Slopes



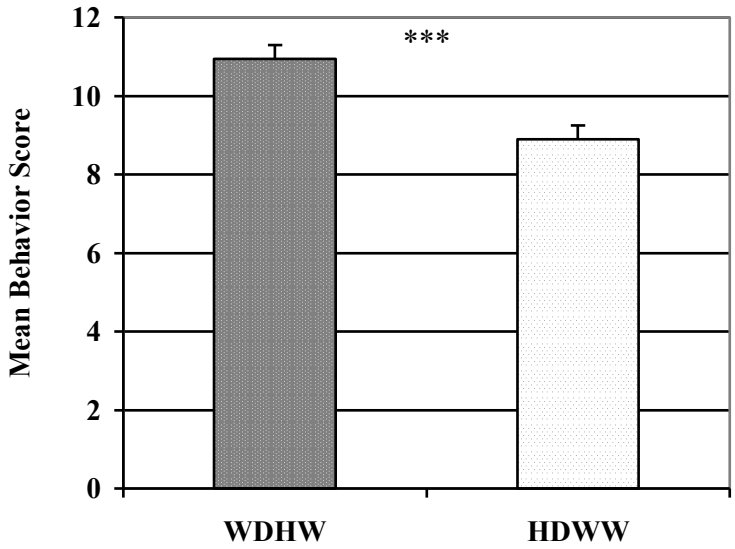
These lines represent the slope values for total demand-withdraw behaviors for middle-aged couples (M = 0.15, SD = 0.5) and older couples (M = 0.20, SD = 0.4), respectively. Both slopes are significantly greater than zero, indicating that demand-withdraw behaviors show an overall pattern of increase. After controlling for intercepts, there is a significant age difference between the trajectory of change in demand-withdraw behaviors for the two cohorts, with older couples increasing at a steeper rate of change than middle-aged couples.

Table 10: Gender Differences in Demand-Withdraw Intercepts

	Husbands Mean *(SD)*	Wives Mean *(SD)*	F Score	η_p^2
Multivariate Model			5.87***	.16
<u>Repeated-Measures Intercepts</u>				
Blame	2.71 *(1.7)*	3.40 *(2.1)*	14.71***	.11
Pressure	2.63 *(1.6)*	3.37 *(2.1)*	11.02***	.08
Withdrawal	2.24 *(1.4)*	1.80 *(1.0)*	12.75***	.09
Avoidance	1.91 *(1.0)*	1.78 *(1.2)*	2.64	.02

$p < .05$, $p < .01$**, $p < .001$****

Figure 6: Gender Differences in Demand-Withdraw Intercepts – Full Sample



p < .05, p < .01**, p < .001****

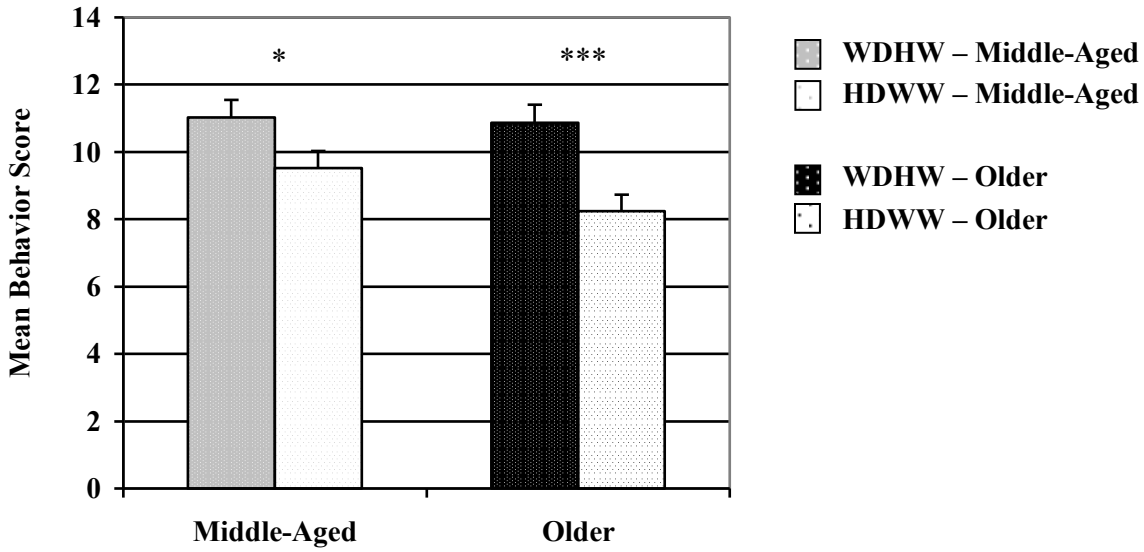
For the full sample of couples, mean intercept score for the wife-demand/husband withdraw pattern (M = 10.94, SD = 4.4) were significantly greater than mean intercept scores for the husband-demand/wife-withdraw pattern, (M = 8.89, SD = 3.7).

Table 11: Gender Differences in Demand-Withdraw Intercepts by Age

	Husbands Mean *(SD)*	Wives Mean *(SD)*	F Score	η_p^2
Middle-Aged Couples				
Multivariate Model			3.57*	.20
<u>Repeated-Measures Intercepts</u>				
Blame	3.05 *(2.1)*	3.62 *(2.0)*	4.94*	.07
Pressure	3.03 *(1.8)*	3.62 *(2.1)*	3.39	.05
Withdrawal	2.18 *(1.3)*	1.77 *(1.0)*	4.67*	.07
Avoidance	1.59 *(1.0)*	1.66 *(1.1)*	0.65	.01
Older Couples				
Multivariate Model			4.51**	.23
<u>Repeated-Measures Intercepts</u>				
Blame	2.37 *(1.3)*	3.18 *(2.1)*	10.24**	.14
Pressure	2.23 *(1.4)*	3.13 *(2.2)*	8.11**	.12
Withdrawal	2.30 *(1.5)*	1.73 *(0.9)*	8.16**	.12
Avoidance	2.22 *(1.4)*	1.89 *(1.3)*	6.28*	.09

$p < .05$, $p < .01$**, $p < .001$****

Figure 7: Gender Differences in Demand-Withdraw Intercepts by Age



p < .05, p < .01**, p < .001****

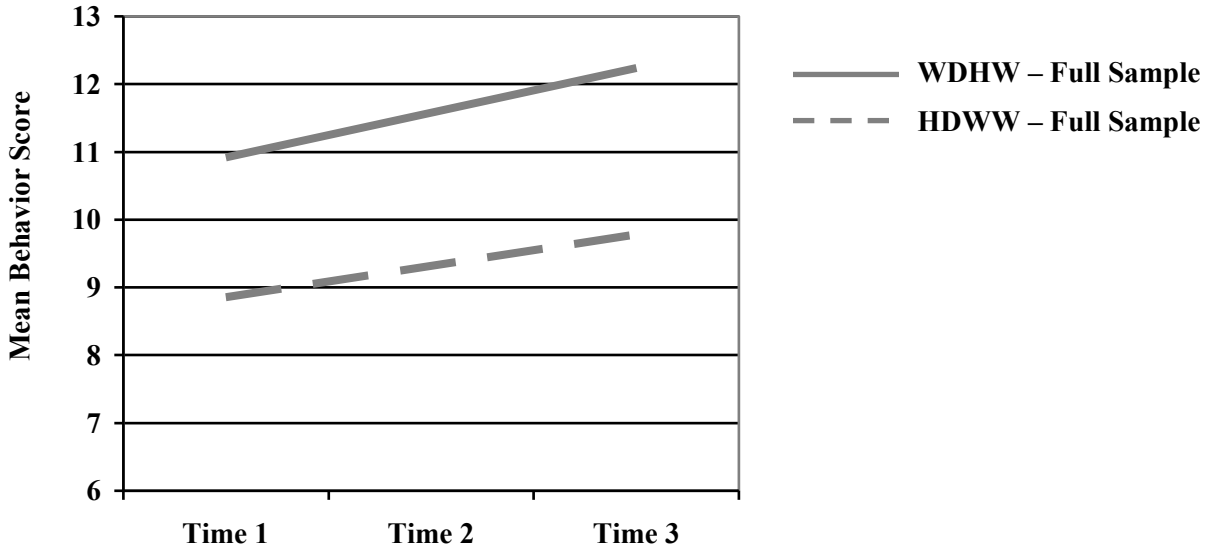
For middle-aged couples, mean scores for the wife-demand/husband withdraw pattern (M = 11.02, SD = 4.4) were significantly greater than mean scores for the husband-demand/wife-withdraw pattern, (M = 9.53, SD = 3.9). The same was true for older couples, who showed an even larger difference between the wife-demand/husband withdraw pattern (M = 10.87, SD = 4.4) and the husband-demand/wife-withdraw pattern, (M = 8.24, SD = 3.2).

Table 12: Gender Differences in Demand-Withdraw Slopes– Full Sample

	Husbands Mean *(SD)*	Wives Mean *(SD)*	F Score	η_p^2
Multivariate Model			1.51	.05
<u>Repeated-Measures Slopes</u>				
Blame	0.00 *(0.2)*	0.04 *(0.2)*	4.09*	.03
Pressure	0.00 *(0.2)*	0.02 *(0.2)*	0.63	.01
Withdrawal	0.03 *(0.1)*	0.01 *(0.1)*	1.74	.01
Avoidance	0.05 *(0.1)*	0.05 *(0.1)*	0.00	.00

$p < .05$, $p < .01$**, $p < .001$****

Figure 8: Gender Differences in Demand-Withdraw Pattern Slopes – Full Sample



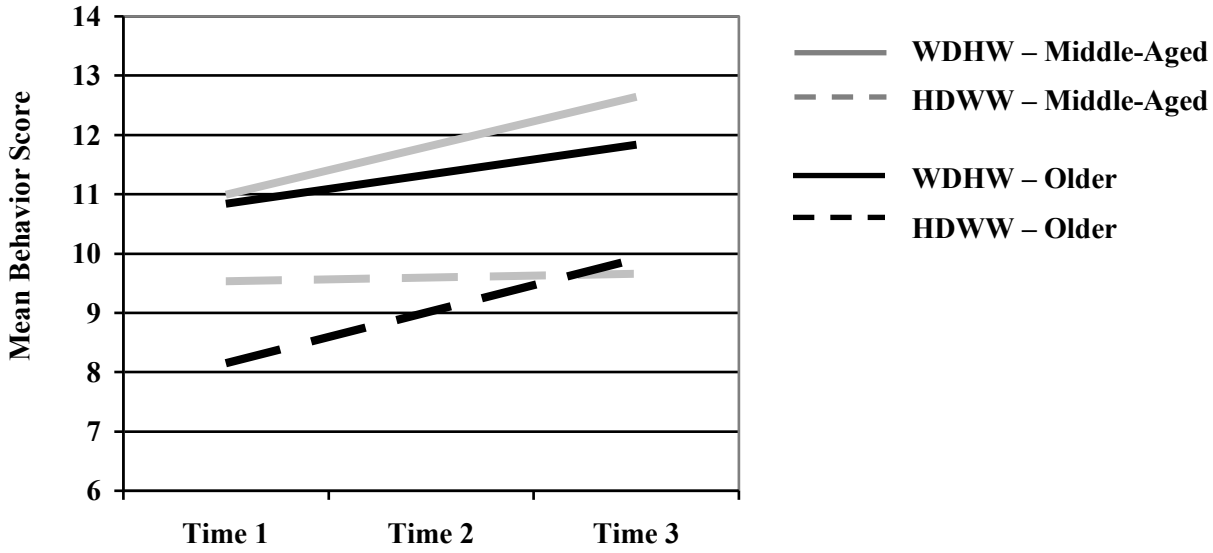
For the full sample of couples, mean slope scores for the wife-demand/husband withdraw pattern (M = 0.10, SD = 0.4) were not significantly different than mean slope scores for the husband-demand/wife-withdraw pattern, (M = 0.07, SD = 0.3). This indicates that while there are higher scores overall for the wife-demand/husband-withdraw pattern than the reverse pattern, the two patterns increase at comparable rates over time.

Table 13: Gender Differences in Demand-Withdraw Slopes by Age

	Husbands Mean *(SD)*	Wives Mean *(SD)*	F Score	η_p^2
Middle-Aged Couples				
Multivariate Model			3.79**	.21
<u>Repeated-Measures Slopes</u>				
Blame	0.00 *(0.2)*	0.05 *(0.2)*	3.88	.06
Pressure	-0.03 *(0.2)*	0.02 *(0.2)*	1.87	.03
Withdrawal	0.04 *(0.1)*	0.00 *(0.1)*	7.28**	.11
Avoidance	0.05 *(0.1)*	0.02 *(0.1)*	3.79	.06
Older Couples				
Multivariate Model			1.11	.07
<u>Repeated-Measures Slopes</u>				
Blame	0.01 *(.1)*	0.03 *(0.2)*	0.73	.01
Pressure	0.02 *(.1)*	0.01 *(0.2)*	0.07	.00
Withdrawal	0.01 *(.1)*	0.02 *(0.1)*	0.32	.01
Avoidance	0.06 *(.1)*	0.08 *(0.1)*	2.12	.03

$p < .05$, $p < .01$**, $p < .001$****

Figure 9: Gender Differences in Demand-Withdraw Slopes by Age



For middle-aged couples, mean slope values for the wife-demand/husband withdraw pattern (M = 0.13, SD = 0.3) were significantly greater than mean slope values for the husband-demand/wife-withdraw pattern, (M = 0.00, SD = 0.3). For older couples, there was not a significant difference between slope values for the wife-demand/husband withdraw pattern (M = 0.07, SD = 04) and the reverse pattern (M = 0.13, SD = 0.2).

Table 14: HLM Analyses Predicing Husbands' and Wives' Marital Satisfaction Intercepts from Initial Levels of Demand-Withdraw Behaviors

Model and Variable	Husband β	SE	Wife β	SE
Full Sample				
Intercept	112.68***	1.4	112.75***	1.4
Total Demand-Withdraw	-0.53*	0.2	-0.67**	0.2
By Age Group				
Intercept	112.66***	1.4	112.74***	1.4
Age Group	1.91	1.4	1.02	1.4
Total Demand-Withdraw	-0.49*	0.2	-0.66**	0.2
Demand-Withdraw X Age Group	0.14	1.5	-0.56	1.5

$p < .05$, $p < .01$**, $p < .001$****

Table 15: HLM Analyses Predicing Husbands' and Wives' Marital Satisfaction Slopes from Initial Levels of Demand-Withdraw Behaviors

Model and Variable	Husband β	SE	Wife β	SE
Full Sample				
Intercept	-0.15*	0.1	-0.15*	0.1
Total Demand-Withdraw	0.00	0.0	0.01	0.0
By Age Group				
Intercept	-0.13*	0.1	-0.14*	0.1
Age Group	0.07	0.1	0.01	0.1
Total Demand-Withdraw	0.00	0.0	0.01	0.0
Demand-Withdraw X Age Group	0.03	0.1	-0.04	0.1

$p < .05$, $p < .01$**, $p < .001$****

Table 16: HLM Analyses Predicing Husbands' and Wives' Marital Satisfaction Slopes from Slopes of Demand-Withdraw Behaviors

Model and Variable	Husband β	SE	Wife β	SE
Full Sample				
Intercept	-0.15*	0.1	-0.14*	0.1
Total Demand-Withdraw	0.00	0.0	0.01	0.0
Total Demand-Withdraw Slope	0.10	0.2	0.05	0.2
By Age Group				
Intercept	-0.13*	0.1	-0.15*	0.1
Total Demand-Withdraw	0.00	0.0	0.01	0.0
Age Group	0.07	0.1	-0.01	0.1
Total Demand-Withdraw Slope	0.09	0.2	-0.01	0.2
Tot DW Slope X Age Group	-0.04	0.1	-0.13*	0.1

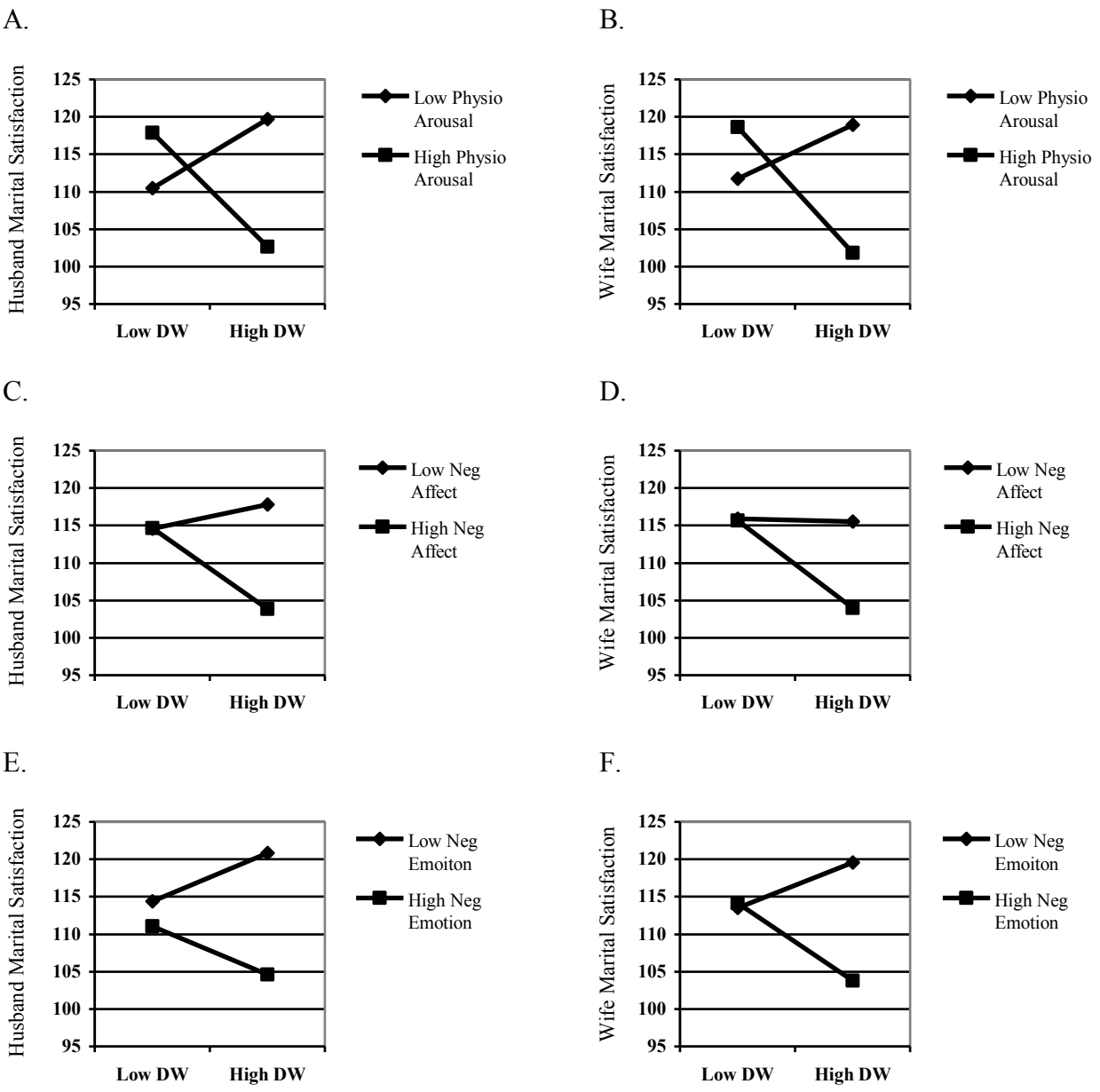
$p < .05$, $p < .01$**, $p < .001$****

Table 17: HLM Analyses Predicting Husbands' and Wives' Marital Satisfaction Intercepts from Initial Levels of Demand-Withdraw Behaviors vs. Other Predictors

Model and Variable	Husband β	SE	Wife β	SE
DW and Physiological Arousal				
Intercept	112.68***	1.3	112.77***	1.3
Physiological Arousal	-2.42	1.3	-2.57	1.3
Demand-Withdraw	-1.51	1.4	-2.39	1.4
Demand-Withdraw X Physio	-6.11***	1.3	-6.01***	1.3
DW and Negative Affect				
Intercept	112.70***	1.4	112.77***	1.4
Negative Affect	-3.47*	1.4	-2.96*	1.4
Demand-Withdraw	-1.90	1.4	-3.02*	1.5
Demand-Withdraw X Neg Aff	-3.51*	1.4	-2.84*	1.4
DW and Negative Emotion Behavior				
Intercept	112.70***	1.3	112.76***	1.3
Negative Emotion Behavior	-4.89**	1.6	-3.79*	1.6
Demand-Withdraw	-0.01	1.5	-1.07	1.5
DW X Neg Emotion Behavior	-3.23*	1.4	-4.12**	1.4

$p < .05$, $p < .01$**, $p < .001$****

Figure 10: Interaction Effects of Demand-Withdraw Behaviors and Other Predictor Variables on Marital Satisfaction



Figures A – F depict the interactions between total demand-withdraw behaviors and other predictor variables. The graphs show four values of the criterion variable that are predicted by substituting values for the observations of demand-withdraw behaviors and physiological arousal, self-reported negative affect, and emotion behaviors, respectively, that are either one standard deviation above the mean (e.g., "High") or one standard deviation below the mean (e.g., "Low") into the relevant HLM equation (Aiken & West, 1991). The graphs in the left column show interactions predicting initial levels of husbands' marital satisfaction. The graphs in the right hand column show interactions predicting initial levels of wives' marital satisfaction.

Table 18: HLM Analyses Predicting Husbands' and Wives' Marital Satisfaction Slopes from Initial Levels of Demand-Withdraw Behaviors vs. Other Predictors

Model and Variable	Husband β	SE	Wife β	SE
DW and Physiological Arousal				
Intercept	-0.14*	0.1	-0.15*	0.1
Physiological Arousal	0.00	0.1	0.04	0.1
Demand-Withdraw	-0.01	0.1	0.04	0.1
Demand-Withdraw X Physio	0.05	0.1	0.04	0.1
DW and Negative Affect				
Intercept	-0.15*	0.1	-0.15*	0.1
Negative Affect	0.06	0.1	-0.09	0.1
Demand-Withdraw	-0.02	0.1	0.06	0.1
Demand-Withdraw X Physio	0.06	0.1	0.06	0.1
DW and Negative Emotion Behavior				
Intercept	-0.14*	0.1	-0.15*	0.1
Negative Emotion Behavior	0.07	0.1	0.04	0.1
Demand-Withdraw	0.11	0.1	0.01	0.1
DW X Neg Emotion Behavior	0.05	0.1	0.05	0.1

$p < .05$, $p < .01$**, $p < .001$****

Appendix A: Couples Interaction Rating System (CIRS) Criteria

The CIRS was developed to capture specific behaviors commonly demonstrated during couples' problem-solving interactions (Heavey et al., 1996). Coders are instructed to assign points based on the frequency, intensity, and context of particular behaviors.

Demand Code Criteria	
Blame	Blames, accuses, or criticizes partner. Uses critical sarcasm, character assassinations.
Pressure for Change	Requests, demands, nags, manipulates, seduces, or otherwise pressures for change in the partner. This pressure can be either positive or negative (critical or complimenting and supportive). This pressure can be implicit as well as explicit; it must carry in it an implicit "should" statement.
Withdraw Code Criteria	
Withdrawal	Withdraws, becomes silent, refuses to discuss a particular topic, looks away, refuses to argue or fight about the issue, does not actively defend self, pulls back, retreats, disengages self from the discussion. More passive than Avoidance.
Avoidance	Actively avoids discussing the problem. Hesitates, changes topics, diverts attention, or delays discussion. More active than Withdrawal.

Appendix B: Specific Affect Coding System (SPAFF) Criteria

The SPAFF Coding System was developed to evaluate the emotional content of couples' problem-solving interactions (Gottman, 1994). SPAFF is a gestalt system of observation that integrates non-verbal and physical cues, voice tone, and speech content to identify specific affects.

Negative Affect Code Criteria	
Anger	Irritation/annoyance, frustration/impatience, lips pressed together, yelling or raising the voice, or demonstrations of constrained anger (often demonstrated through a staccato pattern to speech).
Contempt	Sarcasm, eye rolls, hostile humor, mockery, insults, or raising of the upper lip on one or both sides.
Disgust	Demonstrations of rejection, involuntary aversion, wrinkled nose or mild raising of the upper lip.
Belligerence	Has a provocative quality; functions to provide a response, as if trying to start a fight or get a rise out of the partner. Demonstrated via taunting questions, unreciprocated humor, interpersonal terrorism, or dares.
Domineering	Trying to dominate partner via incessant speech, glowering, low balling, invalidation, patronizing, or lecturing.
Defensiveness	Communication of blamelessness or victimization via "yes, but…" statements, cross-complaining, excuses, negative mindreading, countercriticism, or reflecting blame back onto partner.
Fear/Tension/Worry	Shame/embarrassment cues, such as looking away and down, speech disturbances/incoherence, excessive fidgeting or shifting, nervous laughter, or pitch of voice may become high and tight.
Sadness	Demonstrations of helplessness/hopelessness, sighing/drooping shoulders, pouting/sulking, crying, or quavering voice tone in abnormally high or low pitch.
Whining	This is a non-defensive complaint; demonstrated by high pitched voice tone with sing-song quality.