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When "Negative" Behaviors are Positive: A Contextual Analysis of the Long-Term Effects of Problem-Solving Behaviors on Changes in Relationship Satisfaction

James K. McNulty and **V. Michelle Russell**
University of Tennessee

Abstract

How should partners discuss the problems that arise over the course of their intimate relationships? Prior studies have provided inconsistent answers to this question, with some suggesting that partners benefit by avoiding negative behaviors and others suggesting that partners benefit by engaging in negative behaviors. The two longitudinal studies described here reconcile these inconsistent findings by revealing that direct negative problem-solving behaviors interact with the severity of the problems couples face in their relationships to account for changes in relationship satisfaction. Whereas spouses' tendencies to blame, command, and reject their partners predicted steeper declines in their own marital satisfaction when exhibited in the context of relationships facing only minor problems, those same behaviors predicted more stable satisfaction in relationships facing more severe problems. Subsequent analyses revealed that changes in the severity of the problems themselves mediated these effects. By contrast, indirect negative communications were associated with stably lower levels of satisfaction regardless of problem severity. The current findings join others in highlighting the theoretical importance of accounting for the relational context when examining the implications of various interpersonal processes.

Keywords

Communication; Negative Behavior; Context; Newlyweds; Problem-Solving

How should partners discuss the problems that will inevitably arise over the course of their long-term relationships? Should they avoid any urges they may feel to blame one another for those problems and direct each other toward improvements? Or should they go ahead and point out each other's shortcomings and command one another to change?

The answer to this question has important implications for theories of close relationships. In a classic piece, *Analyzing Close Relationships*, Kelley et al. (1983) highlighted the importance of partners' behavioral exchanges by asserting that every factor that affects a relationship – e.g., personality, cognition, stress, etc. – does so by shaping the behavioral exchanges that occur between the partners. Accordingly, any complete theoretical account of how various

Correspondence concerning this article should be addressed to Jim McNulty, jmcnulty@utk.edu, Department of Psychology, The University of Tennessee, 1404 Circle Drive, Austin Peay, Building, Knoxville, TN 37996.

factors shape relationship development requires a complete empirical account of how various behaviors shape relationship satisfaction.

Nevertheless, the role of partners' problem-solving behaviors in accounting for relationship satisfaction remains unclear. Most notably, the longitudinal studies directly examining the effects of "negative" problem-solving behaviors (e.g., blaming, rejecting, commanding the partner) on changes in relationship satisfaction have yielded inconsistent results, with some studies suggesting that intimates benefit by avoiding such behaviors (e.g., Kiecolt-Glaser, Bane, Glaser, & Malarkey, 2003; Rogge & Bradbury, 1999), other studies suggesting that intimates benefit by engaging in such behaviors (e.g., Gottman & Krokoff, 1989; Heavey, Layne, & Christensen, 1993; Karney & Bradbury, 1997), and still other studies reporting no developmental differences between partners who exchange versus avoid negative behaviors (e.g., Filsinger & Thoma, 1988; Gottman, Coan, Carrere, & Swanson, 1998).

The overarching goal of the two longitudinal studies described here was to clarify the role of negative problem-solving behaviors in the development of relationship satisfaction by examining whether the disparate effects of prior research can be reconciled by recognizing a likely contextual moderator of those effects: the severity of the problems couples face n their relationships. To this end, the remainder of this introduction is divided into four sections. The first reviews existing research on the association between negative behavior and changes in relationship satisfaction, paying particular attention to inconsistencies in the associations revealed by those studies. The second section examines the possibility that, although particular negative behaviors may exert negative influences on relationships when intimates face rather mild problems, those same behaviors may benefit the relationships of intimates facing more severe problems by helping them resolve those problems. In light of this possibility, but also in light of the likelihood that all negative behaviors may not facilitate the resolution of severe problems, the third section attempts to distinguish the types of negative behaviors that may be constructive for relationships facing severe problems from those that should be destructive for all relationships. Finally, the fourth section describes two longitudinal studies of newlywed couples that tested whether the associations between various specific "negative" problem-solving behaviors and changes in marital satisfaction were moderated by the severity of the problems those couples faced in their marriages.

Problem-Solving Behavior and Relationship Development

The most prominent describing the role of behavior in shaping relationship satisfaction is social learning theory (e.g., Jacobson & Margolin, 1979; Wills, Weiss, & Patterson, 1974). According to that theory, intimates' behavioral exchanges with one another serve as the rewards and costs upon which they base their relationship judgments. Specifically, whereas more rewarding exchanges are expected to lead to more positive evaluations of the relationship, more negative exchanges are expected to lead to more negative evaluations of the relationship. Given that self- and partner-reports can be unreliable and invalid measures of behavior (e.g., Jacobson & Moore, 1981; Weiss, 1980; Weiss & Heyman, 1990), the strongest tests of the these predictions come from studies that (1) observe couples as they discuss personal or relationship problems in lab or home settings, (2) code the positivity and/or negativity of the specific behaviors partners exchange during those discussions, and (3) estimate the association between those codes and relationship satisfaction. Indeed, consistent with the predictions derived from social learning perspectives, this type of cross-sectional research tends to indicate that happy couples engage in more positive and fewer negative behaviors whereas unhappy couples engage in more negative and fewer positive behaviors (for reviews, see Gottman, 1998; Heyman, 2001; Weiss & Heyman, 1997).

But a complete understanding of how partners' behavioral exchanges affect the outcomes of their relationships requires not only knowing how happy and unhappy intimates behave concurrently, but also knowing what behaviors allow intimates to maintain their happiness over time – and observational research has been remarkably inconsistent in this respect. In line with social learning perspectives, several studies have demonstrated that negative behaviors are associated with steeper declines in relationship satisfaction over time and/or greater likelihood of divorce (Bradbury, Campbell, & Fincham, 1995; Carrere & Gottman, 1999; Gill, Christensen, & Fincham, 1999; Gottman, Coan, Carrere, & Swanson, 1998; Johnson et al., 2005; Katz & Gottman, 1993; Kiecolt-Glaser et al., 2003; Gottman & Levenson, 1999; Pasch & Bradbury, 1998; Rogge & Bradbury, 1999). For example, using a sample of 90 couples, Kiecolt-Glaser et al. (2003) recently reported that the frequency of negative behaviors observed as Baseline was negatively associated with changes in satisfaction over 10 years of marriage. In contrast, however, other studies have indicated that negative behavior is *positively* associated with changes in satisfaction over time (Cohan & Bradbury, 1997; Gottman & Krokoff, 1989; Heavey, Layne, & Christensen, 1993; Karney & Bradbury, 1997). Providing the first empirical evidence of the benefits of observed negative behavior, Gottman and Krokoff (1989) reported that, although virtually all the negative behaviors they coded were negatively associated with satisfaction concurrently, certain negative behaviors, such as conflict engagement, anger, and disagreement, were positively associated with satisfaction over time among both husbands and wives. Although their research was soon criticized on methodological and statistical grounds (Woody & Constanzo, 1990; also see Bradbury & Karney, 1993), subsequent research (e.g., Cohan & Bradbury, 1997; Heavey et al., 1993; Karney & Bradbury, 1997) demonstrated similar effects using more sophisticated statistical and methodological techniques. For example, Karney and Bradbury (1997) used growth curve modeling to demonstrate that wives' negative behavior predicted more stable satisfaction among both husbands and wives across eight assessments of marital satisfaction spanning the first four years of 60 marriages.

Why should negative behavior be positively associated with changes in satisfaction? Although how particular behaviors make each partner feel immediately may explain part of the association between problem-solving behavior and relationship satisfaction, as posited by social learning theory, the extent to which those behaviors help intimates resolve the problems they face in their relationships should explain another part of that association. Indeed, changes in the severity of marital problems are strongly negatively associated with changes in relationship satisfaction (McNulty, O'Mara, & Karney, 2008). Accordingly, even behaviors that feel bad temporarily may demonstrate long-term benefits to the relationship if they help couples resolve important problems. Such has been the explanation for the positive associations between negative behavior and changes in satisfaction that have emerged in prior studies (see Cohan & Bradbury, 1997; Gottman & Krokoff, 1989; Heavey et al., 1993, Karney & Bradbury, 1997). For example, Cohan and Bradbury (1997) explained the positive association between wives' anger and changes in satisfaction that emerged in their study by speculating that "wives' anger may be adaptive to the extent that it promotes constructive, active engagement in problem solving and increases the likelihood of resolving marital strains related to external events" (p. 125). Consistent with such speculation, Overall, Fletcher, Simpson, and Sibley (2009), actually predicted and demonstrated that direct negative communication is adaptive to relationships over time because it "*motivates* partners to bring about desired change" (p. 621; for similar discussion, see Krokoff, 1991).

Reconciling the Contrasting Views of Negative Behavior

How can these contrasting views of the long-term implications of negative interpersonal behavior on changes in relationship satisfaction be reconciled? In line with Bradbury and Fincham's (1988, 1991) contextual model of interpersonal interaction, which posits that the implications of a specific interaction behavior depend on the context in which it occurs, one

reconciliation may lie in attending to qualities of the relationships in which those behaviors occur. Consistent with this possibility, two independent studies (Huston & Chorost, 1994; Johnson et al., 2005) reveal that the negative implications of partners' negative problem-solving behaviors are moderated by the affect those partners display while exchanging those behaviors. Specifically, negative problem-solving behaviors were only maladaptive over time when they were combined with low levels of positive affect or high levels of negative affect.

Although these studies reveal why some relationships may be resilient to the negative implications of negative behaviors, they do not explain why some relationships may *benefit* from negative behaviors. What may be missing from examinations of the factors that should moderate the effects of problem-solving behavior on changes in marital satisfaction is an analysis of the likely moderating role played by the problems themselves. In line with the idea that negative behaviors may be adaptive to relationships by motivating the partner to change and thus helping couples resolve their problems, negative behaviors may be adaptive to relationships in which such change is necessary – i.e., relationships characterized by particularly severe problems. An intimate faced with a partner with serious substance abuse problems, for example, may benefit by blaming him or her for that behavior and commanding him or her toward improvements. Addressing such problems without negative behavior may be detrimental to the relationship by failing to provide the motivation necessary to resolve the problem. In contrast, negative behaviors may be detrimental when unnecessarily exchanged in the context of relationships facing problems that are either unimportant, affect the relationship only rarely, or will likely resolve on their own. An intimate faced with a usually-diligent partner who forgets to take out the trash, for example, may not need to respond with negative behavior. In fact, as other have suggested (e.g., Gottman, 1994; Heavey et al., 1993; Holmes & Murray, 1996), such unfair attacks may actually undermine resolutions to minor and infrequent problems by making the partner feel resentful and less motivated to make any necessary changes. Accordingly, intimates in relationships facing more minor problems may benefit from avoiding negative behavior.

We are aware of no studies that have directly tested the possibility that the association between negative behavior and changes in relationship satisfaction is moderated by the severity of the problems couples face in their relationships; however, several lines of research provide indirect support for it. First, studies demonstrating that more negative behaviors are harmful to marriages have tended to sample from new marriages (Carrere & Gottman, 1999; Johnson et al., 2005; Kiecolt-Glaser et al., 2003; Pasch & Bradbury, 1998; Rogge & Bradbury, 1999) and relatively satisfying marriages (Katz & Gottman, 1993) where, on average, couples face less severe problems. Accordingly, these main effects are consistent with the idea that negative behavior is negatively associated with satisfaction among people facing relatively minor problems, on average. Studies demonstrating that negative behaviors benefit relationships over time, in contrast, have sampled from couples in distressed relationships (Gottman & Krokoff, 1989), couples discussing particularly severe problems (e.g., Overall et al., 2009), or couples who face difficult issues (Heavey et al., 1993). Even the two studies demonstrating the positive effects of negative behavior in new marriages (Cohan & Bradbury, 1997; Karney & Bradbury, 1997) only demonstrated such effects for wives, who tend to report more severe problems in their relationships (Levinger, 1976; Macklin, 1978; Rubin, Peplau, & Hill, 1981). Accordingly, these main effects are consistent with the idea that negative behavior is positively associated with satisfaction among people facing more severe problems, on average. Second, recent research by McNulty et al., (2008) indicates that the severity of the problems partners encounter in their relationships moderates the effects of a notable precursor to negative behavior, negative attributions (Fincham & Bradbury, 1988; Pearce & Halford, 2008). Specifically, McNulty et al. (2008) used two independent samples of married couples to reveal that intimates facing severe problems experienced more stable satisfaction over the first four years of marriage to the extent that they made more negative rather than positive marital attributions. Further,

consistent with the possibility that those more negative attributions led partners to engage in more negative behaviors that helped them resolve their more severe problems, the interactive effects of attributions and problem severity on changes in satisfaction were mediated by changes in the severity of the problems themselves, such that making more blaming attributions in the context of severe problems led to more stable satisfaction through improving problems. Finally, the most direct support for the idea that the effects of negative behavior on changes in marital satisfaction are moderated by the severity of the problems couples face in their relationships comes from research showing that wives who faced more severe interpersonal stressors demonstrated higher levels of relationship satisfaction over time to the extent that they also demonstrated more anger in conversations with their husbands (Cohan & Bradbury, 1997). Although they did not test the possibility, the authors speculated that wives' higher levels of anger may have led to enhanced experiences with the relationship by helping them resolve the more severe interpersonal problems they encountered in their marriages.

Distinguishing between Types of Negativity

Not all negative behaviors may be adaptive, however – even when exchanged in relationships characterized by more severe problems. Specifically, given that whether negative behaviors are associated with satisfaction or dissatisfaction over time should depend on whether or not those behaviors help intimates resolve the problems they face in their relationships, only negative behaviors that effectively resolve severe problems should be adaptive to relationships facing such problems. Several theoretical analyses suggest that the *directness* of the behavior may be one quality that determines its effectiveness at resolving problems (e.g., Canary, 2003; Epstein, Ryan, Bishop, Miller, & Keitner, 2003; Falbo & Peplau, 1980; Overall et al., 2009). Direct statements are those that explicitly engage the partner through tactics such as blames (e.g., "You drink too much."), commands (e.g., "You have to stop drinking."), and rejections (e.g., "You are selfish for drinking too much."). Indirect statements, in contrast, are those that engage the partner only implicitly through tactics such as avoidance (e.g., "I'm not the one who drinks too much."), insinuations (e.g., "Have you ever heard of drinking in moderation?"), and presumptions ("You must not love me."). According to Overall et al. (2009), whereas direct negative tactics may effectively resolve problems over time because they provide partners with a clear understanding of the importance of the problem and the steps necessary to resolve that problem, indirect negative statements are likely to be ineffective at resolving problems because they leave it vague and ambiguous how the partner should respond. Indeed, Overall et al. reported that whereas direct negative statements during problem-solving discussion predicted partners' reports of how much they had changed over time, indirect negative statements were unrelated to change.

But should all types of direct negative statements benefit relationships facing severe problems? Although commands, blames, and rejections are all direct, some authors (e.g., Gottman, 1994; Holmes & Murray, 1996) have argued that rejections may actually undermine partners' motivation to address any problem. For instance, character-focused criticism is one of Gottman's (1994) "Four Horseman of the Apocalypse" hypothesized to be consistently positively associated with dissatisfaction and divorce. Indeed, Gottman and colleagues (Gottman, 1994; Gottman, et al., 1998; Gottman & Krokoff, 1989) have reported that, whereas anger is unassociated with divorce and positively associated with change in satisfaction, character-focused criticism appears to be associated with increased divorce. In explaining this difference, Gottman (1994) suggests that, although anger may indicate a willingness to confront a problem, which may in turn help resolve that problem, character-focused criticisms can spiral into behaviors that impede resolutions to the problem (e.g., stonewalling). Likewise, Holmes and Murray (1996) suggested negative behaviors during problem-solving discussions may be most adaptive to the extent that they are limited to behavior-focused rather than character-focused criticism. Like Gottman (1994), they suggest that character-focused criticism may lead

to resentment in the partner that may impede a resolution to the problem. Nevertheless, analyses demonstrating both negative and positive associations between direct negative behavior and relationship development have collapsed across these potentially meaningful distinctions, leaving any of their differential effects unclear.

Overview of the Current Studies

We used two longitudinal studies to examine the role of problem severity in moderating the effects of negative problem-solving behavior on the course of relationship satisfaction. Both studies assessed the severity of the problems spouses faced in their marriages and the extent of negative behaviors they tended to exchange in discussion of those problems. To measure negative behavior, both studies (1) observed spouses during two problem-solving discussions and (2) coded the negative content of spouses' verbal behavior. To measure changes in relationship satisfaction and problems, both studies asked couples to report on their marital satisfaction and problem severity approximately every six months (up to eight reports in Study 1 and up to three reports in Study 2). Drawing upon these repeated assessments, analyses were able to examine how behavior and initial problem severity interacted to account for trajectories of relationship satisfaction over the first few years of these marriages. Given the parallel designs of the two studies, both are described simultaneously below.

Given that direct negative behaviors can motivate partners to make necessary changes (Overall et al., 2009), we predicted that spouses' tendencies to blame and command their partners would interact with initial problem severity to predict changes in marital satisfaction, such that blames and commands would predict steeper declines in satisfaction among spouses in marriages characterized at the outset by more minor problems, but predict more stable satisfaction among spouses in marriages characterized at the outset by more severe problems. Further, given our premise that the interactive effects of those behaviors and the severity of the problems spouses faced in their relationships would operate on satisfaction by helping couples resolve those problems, we predicted that these interactive effects would be mediated by changes in the severity of the problems themselves. Given that indirect negative behaviors should not effectively resolve problems, in contrast, we predicted that indirect negative behaviors would be associated with lower levels of satisfaction due to social learning regardless of the severity of the problems faced in the relationship. Given competing theoretical predictions regarding the effects of character-focused rejections on partners' motivations to address problems, and given that prior empirical research has collapsed across any unique variance between such character-focused negative behaviors and more problem-focused negative behaviors, we made no strong predictions regarding whether problem severity would moderate the effects of rejections on changes in satisfaction and problem severity. Nevertheless, we examined the main and interactive effects of such behaviors and compared them to direct problem-centered negative behaviors and indirect negative behaviors.

Method

Participants

Participants in Study 1 were 72 newlywed couples recruited from Northern Ohio; participants in Study 2 were 135 newlywed couples recruited from Eastern Tennessee.[1] Couples in both studies were recruited using two methods. The first was to place advertisements in community newspapers and bridal shops offering payment to couples willing to participate in a longitudinal study of newlyweds. The second was to send invitations to eligible couples who had completed marriage license applications in counties near study locations. All couples responding to either solicitation were screened for eligibility in an initial telephone interview. Inclusion required that: (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, (c) each partner was at least 18 years of age, (d) and each partner spoke English and

had completed at least 10 years of education (to ensure comprehension of the questionnaires). As part of the larger aims of Study 2 (i.e., to allow a similar probability of transitioning to first parenthood for all couples), that study added the additional criteria that couples did not already have children and that wives were not older than 35. Eligible couples were scheduled to attend an initial laboratory session and mailed a packet of survey measures.

Demographic summaries of the participants in both samples are presented in Table 1. As the table reveals, participants were of comparable age across both samples, with both spouses in their mid-twenties and husbands being slightly older than wives, on average. Reflecting the education level of each community, participants in Study 1 reported relatively low levels of education, on average, whereas participants in Study 2 reported relatively high levels of education, on average. Further, a large proportion of participants in both studies was employed full-time at the beginning of the study, whereas a minority of participants was in school full time. The median income, combined across spouses, was between 30K and 40K in each study. The majority of participants were Caucasian (> 90%).

Procedure

Procedures were nearly identical in both studies. Before their laboratory session, participants were mailed a packet of questionnaires to complete at home and bring with them to their appointment. This packet included a consent form approved by the local human subjects review board, self-report measures of marital satisfaction and the severity of marital problems, and a letter instructing couples to complete all questionnaires independently of one another and to bring their completed questionnaires to their upcoming laboratory session. Upon arriving to that session, each spouse identified an area of difficulty in the marriage and then both spouses participated in two 10-minute videotaped discussions in which they were left alone to "work towards some resolution or agreement" for each area of difficulty. The order of the two interactions was determined through a coin flip. If both spouses chose the same topic, they first discussed that topic and then discussed a second topic chosen by the spouse whose topic was designated to be discussed second. After completing their interactions, couples were paid $80 for participating in this phase of each study.

At approximately six- to eight-month intervals subsequent to the initial assessment, couples were re-contacted by phone and again mailed marital satisfaction and marital problems questionnaires, along with postage-paid return envelopes and a letter of instruction reminding couples to complete forms independently of one another. After completing each phase, couples were mailed a $50 check for participating. The current analyses are based on up to eight assessments of the spouses in Study 1 and up to three assessments of the spouses in Study 2.

Measures

Observed Negative Behavior—Prior research has tended to code the content of partners' verbal expressions during problem-solving interactions using one of four coding systems: the *Marital Interaction Coding System* (*MICS*; Heyman, Eddy, Weiss, & Vivian, 1995), the *Couples Interaction Scoring System* (*CISS*; Gottman, 1979), the *Kategoriensystem für Partnerschftliche Interaktion* (*KPI*; Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998),

[1]Although data from Study 1 are described in several articles (Fisher & McNulty, 2008; Frye, McNulty, & Karney, 2008; Little, McNulty, & Russell, in press; McNulty, 2008a, 2008b; McNulty & Fisher, 2008) and data from Study 2 are described in Little et al. (in press), there has been little overlap between the variables examined in these prior articles and the variables examined here. The two exceptions are that (a) the behavioral codes in this sample were related to neuroticism in McNulty (2008a) and (b) the behavioral codes in this sample moderated the association between forgiveness and changes in satisfaction over four waves of marital satisfaction from this sample in McNulty (2008b). Notably, although there is conceptual overlap between the two studies described here and the two studies described by McNulty et al. (2008), in that the tendency to make negative attributions may overlap with the tendency to engage in negative behaviors, neither of the samples described here was used in the analyses reported by McNulty et al. (2008).

and the *Verbal Tactics Coding Scheme* (VTCS, Sillars, Coletti, Parry, & Rogers, 1982; for an extensive review, see Heyman, 2001). Notably, these systems show remarkable consistency in terms of the negative behaviors they identify (e.g., blaming the partner, rejecting the partner, commanding the partner, avoiding responsibility, insinuations). We used a modified version of the *VTCS* (Sillars, 1986; Sillars et al., 1982) in the current research because it distinguishes between both types of negative behavior of interest in the current study: 1) direct and indirect and 2) behavior-focused versus character-focused negative statements.

Each speaking turn from each spouse was coded. A speaker received a *Blaming* code for any part of a speaking turn that directly criticized the partners for past, current, or future negative behaviors (e.g., "You never listen to me."), or directly pointed out any ongoing role played by the partner in a past, current, or future problem (e.g., "This is your fault."). A speaker received a *Commanding* code for speaking turns that directly instructed the partner to engage in behaviors to resolve the problem (e.g., "Don't do that anymore."). A speaker received a *Rejecting* code for speaking turns that directly insulted or pointed out personal flaws in the partner ("You're so immature.") or directly undermined the partner's point of view ("I don't care what you think."). Finally, a speaker received an *Indirect Negative* code for speaking turns that indirectly blamed, commanded, or rejected the partner through presumptive attributions (e.g., "I know how you really feel about this"), hostile questions (e.g., "What did I tell you?"), avoiding responsibility (e.g., "I can't stop."), and sarcasm (e.g., "Yeah, *that's* a good idea."). Each speaking turn received only one code. Following instructions by Sillars (1986), when a single speaking turn could be assigned multiple codes, the one code was assigned according to a predetermined hierarchy in which rejections took precedence over blames, commands, and indirect negative behaviors, blames took precedence over commands and indirect negative behaviors, and commands took precedence over indirect negative behaviors. Because we were interested in total frequency with which each spouse tended to exhibit negative behavior, we computed a total proportion of each negative behavior exhibited by each spouse in each conversation by dividing the number of codes for each spouse in each conversation by the total number of speaking turns for that spouse in that conversation. Given our hypotheses did not distinguish between husbands' and wives' topics, but rather were best tested using the behavior exchanged during these discussions as a proxy for the spouses' tendencies toward exchanging negative behaviors during problem-solving discussions generally, we collapsed across the two conversations to form an index of the average tendency for each spouse to exhibit each negative behavior across both conversations (The correlation between proportions of negative behavior exhibited across the two discussions was $r = .52$ for husbands and $r = .73$ for wives in Study 1 and $r = .23$ for husbands and $r = .51$ for wives in Study 2.)

Behavioral data were not available for 5 of the 207 couples, and only partial behavioral data were available for 1 additional couple. In Study 1, both conversations from one couple and one conversation from a second couple were damaged. In Study 2, two couples refused to be recorded and both conversations from a third couple were damaged. The couples for whom behavioral data were available did not differ from those for whom behavioral data were not available on any of the variables of interest.

To determine the reliability of our coding, we randomly chose approximately 20% of the discussions to be coded by a second rater. Given our analyses were based on the total proportions of each behavior observed during each conversation, agreement between coders was assessed by calculating intra-class correlation coefficients (*ICC*) between the proportions of speaking turns given the same code by each coder (see Shrout & Fleiss, 1979). In Study 1, we first did not distinguish between blames and rejections, coding any speaking turn that met the criteria for either as "directly negative." After developing the current hypothesis, however, the two authors went back and recoded all the speaking turns that had been identified as directly negative into blames or rejections. Accordingly, reliabilities are presented for both of these

two phases of coding, where 10% of the conversations were double-coded during the recoding procedure. In both studies, reliability was adequate for most behaviors (in Study 1, *ICC* for Commands = .93, *ICC* for Blames and Rejections combined = .84, *ICC* for recoded blames = .97, *ICC* for recoded Rejections = .87; in Study 2, *ICC* for Blames = .88; *ICC* for Indirect Negative = .88), although slightly lower than desired for a few behaviors in each study (in Study 1, *ICC* for Indirect Negatives = .65; in Study 2, *ICC* for Rejections = .65 and *ICC* for Commands = .61). Nevertheless, reliability was adequate for every behavior in at least one of the two studies, enhancing confidence in any findings that emerged as consistent across the two studies.

Severity of Relationship Problems—The severity of partners' relationship problems was assessed every six months in each study using a version of the *Inventory of Marital Problems* (IMP; Geiss & O'Leary, 1981). This version lists 19 potential problem areas in a marriage (e.g., money management, trust, making decisions, in-laws, sex, showing affection, drugs and alcohol) and asks participants to rate each item on a scale from 1 (not a problem) to 11 (major problem). Spouses' ratings of each item were averaged to form an index of average problem severity that could range from 1 to 11. Given that spouses reporting one area of the relationship to be a problem should not necessarily be expected to report other areas of the relationship to be a problem, internal consistency is not reported.

Marital Satisfaction—Marital satisfaction was assessed every six months in each study. To ensure that global sentiments toward the relationship were not confounded with the independent variables of interest in the current study (see Fincham & Bradbury, 1987), a semantic differential (SMD; Osgood, Suci, & Tannenbaum, 1957) measure was used to assess spouses' global evaluations of the relationship exclusively. This version of the SMD asks spouses to rate their perceptions of their relationship on 7-point scales between fifteen pairs of opposing adjectives (e.g., "Bad-Good," "Dissatisfied-Satisfied," "Unpleasant-Pleasant"). Thus, this version of the SMD yields scores from 15 to 105, with higher scores reflecting more positive satisfaction with the relationship. Internal consistency of this measure was high across all phases of both studies (across all phases of both studies, coefficient alpha was above .90 for both husbands and wives).

Overview of Data Analyses

The analyses proceeded in three stages. First, we estimated trajectories of change in marital satisfaction over the multiple assessments of each study through 3-level growth curve modeling (Bryk & Raudenbush, 1987), using the HLM computer program (Bryk, Raudenbush, & Congdon, 2004). That is, spouses' reports of satisfaction (up to eight reports in Study 1 and up to three reports in Study 2) were regressed onto the time of data collection in the first level of the model, the autocorrelation due to repeated assessments was controlled in the second level of the model, and the shared variance between husbands' and wives' data was controlled in the third level of the model.[2] Second, we examined whether initial problems, negative behavior, and their interaction accounted for between-subjects differences in the trajectories estimated at level 1. Specifically, in one set of analyses we separately entered initial problems or each behavior into both level 2 equations to estimate main effects of each variable on both parameters of the growth curves estimated at level 1. Then, in a second set of analyses, we estimated the

[2]Following procedures described by West, Welch, and Gałecki (2007), we tested the structure of the random effects at level 3 by comparing deviance statistics of models that did and did not estimate random effects of the level 3 parameters. The best-fitting model for all analyses involving Study 1 was the one that retained both random effects. Accordingly, analyses that estimated effects in Study 1 and analyses that collapsed across studies included random effects associated with both parameter estimates at level 2 and level 3. The model omitting the random effect associated with the level 3 intercept in Study 2, in contrast, did not differ significantly from the more complex model that retained the random effect. Following the recommendations of West et al. (2007) to use the simpler model when two models do not differ significantly, analyses of the data from Study 2 omitted the random effect associated with the level 3 intercept.

interactive effects of initial problems and each behavior by entering centered values of initial problems and all measures of behavior simultaneously, along with one appropriate interaction term at a time, into both level 2 equations to account for both parameters of the growth curves estimated at level 1.[3] We controlled for sex in all analyses by entering a dummy code for sex in both level 2 equations. We also tested whether every main or interactive effect varied by sex by entering the appropriate Sex X Effect interaction term into both level 2 equations. All significant sex effects are reported. Finally, we examined changes in problem severity as a mediator of any significant interactions that emerged between behavior and initial problem severity on changes in marital satisfaction. Given that the same instruments and methods were used in both studies, in addition to conducting all analyses separately for each study, we also conducted analyses that maximized the available power to detect effects by collapsing across both studies. Importantly, all analyses that collapsed across study controlled for variability unique to each study (e.g., slight differences in sample characteristics, differences in number of assessments completed) by entering a dummy code for study to account for variance in the average of each parameter of the trajectory as estimated at level 3. Also, all analyses that collapsed across study directly tested whether any main or interactive effects estimated at level 2 significantly differed across the two studies by entering that dummy code to account for variance in that effect at level 3.[4] One significant study effect is reported.

Results

Descriptive Statistics and Preliminary Analyses

Descriptive statistics for the independent variables in both studies are presented in Table 2. As would be expected in samples of newlyweds, husbands and wives tended to rate their problems as not very severe, on average. Further, spouses were rated by observers as engaging in a low proportion of negative behaviors during their problem-solving discussions, on average. Nevertheless, consistent with the idea that the newlywed period can also be a time of transition and adjustment (e.g., Bramlett & Mosher, 2002;Cherlin, 1992), standard deviations in all these independent variables reveal substantial between-person variability. The behavioral codes demonstrated some positive skew, however; thus, as others have done (e.g., Johnson et al., 2005), we subjected those codes to logarithmic transformations and used the improved distributions in all subsequent analyses.

Correlations among the independent variables are presented in Table 3. Several results are worth highlighting. First, although correlations between observed negative behavior and problem severity failed to reach significance for husbands, rates of observed negative behavior and self-reported problem severity were positively associated for wives in both studies, suggesting that wives who tended to report more severe problems also tended to exhibit more negative behavior. Second, rates of each type of negative behavior tended to be positively correlated among both husbands and wives, supporting the tendency for prior research to collapse across those codes. Nevertheless, consistent with the current prediction that different negative behaviors may demonstrate different effects on changes in marital satisfaction, at least

[3]Analyses testing the interactive effects of the summed index of negative behavior controlled for the index of indirect negative behavior. Analyses testing the interactive effects of each type of direct negative behavior (i.e., blaming, commanding, rejecting) controlled for the other two types of direct negative behavior and the measure of indirect negative behavior. Analyses testing the interactive effects of indirect negative behavior controlled for the three specific types of direct negative behavior.

[4]Analyses that collapsed across the two studies were conducted in two ways. In one type of analyses, all eight waves of data from Study 1 were included. However, given concern that such analyses may obscure effects because satisfaction was assessed eight times in Study 1 but only three times in Study 2, a second analyses included only the first three waves of marital satisfaction data from Study 1. Findings from the two types of analyses were nearly identical. The only differences that emerged between the two types of analyses is that the Sex X Commands X Problems interaction on changes in satisfaction and the Rejections X Problems and Commands X Problems interaction on changes in problems did not reach significance. Given these negligible differences, and given that the analyses retaining Waves 4-8 in Study 1 contained more power and were more consistent with the findings reported based on separate analyses of Study 1, we reported the results of the analyses that retained all data from Study 1.

half the variance in every negative code was unshared with the variance in the other negative codes, and correlations between some negative codes failed to reach significance. Finally, the cross-spouse correlations reveal that spouses tended to share some agreement regarding the severity of their problems, and tended to engage in similar levels of negative behavior during conversations about those problems.

Describing Trajectories of Marital Satisfaction

Of the 72 marriages in Study 1, 9 (13%) were dissolved at Time 8. Of the 135 marriages in Study 2, 5 (4%) were dissolved at Time 3. Mean marital satisfaction scores, standard deviations, and the number of spouses reporting at each wave of data collection in each study are reported in Table 4. As can be seen there, husbands and wives in both studies appeared to be relatively satisfied at the outset of the study. Nevertheless, consistent with other longitudinal studies of newlyweds (e.g., McNulty et al., 2008), husbands and wives in both studies appeared to experience declines in satisfaction over time.

Growth curve modeling (e.g., Bryk & Raudenbush, 1987) was used to estimate such within-person change in satisfaction over time in each study. Specifically, the following equation was estimated in the first level of a 3-level model:

$$Y_{ij}(\text{Marital Satisfaction})=\pi_{0ij}(\text{Intercept})+\pi_{1ij}(\text{Time})+e_{ij} \quad \text{[Equation 1]}$$

where, Y_{ij} is the marital satisfaction of individual j at Time i; π_{0ij} is the marital satisfaction of individuals j at Time 0 (i.e., the initial satisfaction for individual j); π_{1ij} is the rate of linear change in marital satisfaction of individual j; and e_{ij} is the residual variance in repeated measurements for spouse j, assumed to be independent and normally distributed across spouses. This model can be understood as a within-subjects regression of an individual's marital satisfaction onto time of assessment, where the autocorrelation due to repeated assessments was controlled in the second level of the analysis, and the shared variance between husbands' and wives' data was controlled in a third level of the analysis. Notably, because trajectories could be computed for all spouses who participated in two or more assessments, the majority of these couples were included in the analyses. Specifically, growth curve analyses were based on all 144 individuals in Study 1 and 234 (87%) of the 270 individuals in Study 2.

Mean estimates, standard deviations, and effect sizes of the growth curve parameters estimated by Equation 1 are presented in Table 5.[5] As the table reveals, on average, individuals tended to report relatively high levels of satisfaction initially, but then tended to experience significant declines in satisfaction over time. Nevertheless, according to the standard deviations of these parameter estimates, there was substantial between-subjects variability in all parameters of these trajectories, suggesting that some spouses began the relationship with higher or lower levels of satisfaction than others, and that some spouses experienced more or less change in their satisfaction than others. The primary aim of the current studies was to examine whether variability in changes in satisfaction could be explained by the interaction between negative behavior and initial problem severity. Notably, entering a dummy code for sex into both level 2 equations to account for between-person variance in the intercepts and slopes estimated by

[5]Currently, there is considerable disagreement regarding the best method to compute estimates of the size of effects obtained though multilevel modeling (e.g., see Roberts & Monaco, 2006; Snijders & Bosker, 1999). Nevertheless, we attempted to approximate the size of the effects obtained here by computing effect size *r*s using the following formula provided by Rosenthal and Rosnow (2007):

$$r=\sqrt{\frac{t^2}{t^2+df}}.$$

Equation 1 indicated that husbands and wives did not differ in either of the two parameters estimated in either of the two studies.

How are behaviors associated with initial levels of and changes in satisfaction over time?

Before estimating the interactive effects of behavior, we examined the main effects of initial problem severity and each type of behavior on the intercepts and slopes estimated by Equation 1. For these analyses, problem severity or one of several measures of behavior (blames, commands, rejections, a summed index of these 3 direct negative behaviors, or the index of indirect negative behaviors) was separately entered into both level 2 equations, along with a dummy code for sex. As described above, we conducted these analyses on each study separately and, in an effort to maximize power, also conducted analyses that collapsed across both studies. In the analyses that collapsed across the studies, we entered a dummy code representing whether the data were collected in Study 1 or Study 2 to control for variance in the average of each parameter estimated at level 3. Additionally, we conducted subsequent analyses to test whether any of the main effects varied by sex by entering the appropriate Sex X Problem or Sex X Behavior interactions at level 2, and whether any of the main effects varied by study by entering the study dummy code to account for variance in the average of all effects estimated at level 3.

Associations between these variables and initial satisfaction, i.e., the intercepts of the trajectories estimated by Equation 1, are reported in the top section of Table 6. As can be seen there, initial problem severity was negatively associated with initial satisfaction in both studies, indicating, not surprisingly, that happier couples tended to report less severe problems. Regarding associations between behavior and initial satisfaction, a consistent pattern of negative associations emerged between each behavior and initial satisfaction, indicating that spouses who exhibited more negative behaviors were less satisfied with their relationships initially. Although some of these associations did not reach significance in analyses of each separate study, each behavior was significantly negatively associated with initial satisfaction in the analysis that yielded the most power by collapsing across study. Importantly, tests of the Study X Problems and all Study X Behavior interactions revealed that none of these main effects that emerged on the intercepts varied significantly across study. Likewise, tests of all Sex X Problems and Sex X Behavior interactions revealed that none of these main effects varied across sex.

Associations between these variables and changes in satisfaction, i.e., the slopes of the trajectories estimated by Equation 1, are reported in the bottom section of Table 6. As can be seen there, initial problems were negatively associated with changes in satisfaction in Study 1 and in the analysis that collapsed across both studies, suggesting, somewhat surprisingly, that spouses who reported the least severe problems initially tended to decline in satisfaction at a steeper rate. Additionally, consistent with some prior research (e.g., Filsinger & Thoma, 1988; Gottman et al., 1998), all but one main-effect of behavior on changes in satisfaction were non-significant, even when the power to detect effects was maximized in the analyses that collapsed across study, indicating that, on average, negative behaviors were unrelated to changes in relationship satisfaction over time. The one exception was that commands were marginally negatively associated with changes in satisfaction in Study 2. Nevertheless, the central prediction driving the current research suggests such average effects may mask important effects that emerge among spouses experiencing more versus less severe problems. Importantly, tests of the Study X Problem, all Study X Behavior, the Sex X Problem, and all Sex X Behavior interactions revealed that none of these effects varied significantly across sex or study.

Does initial problem severity moderate the association between initial negative behavior and initial satisfaction?

To address whether each type of negative behavior interacted with initial problems to account for each parameter of the growth curves estimated by Equation 1, each measure of behavior (blames, commands, rejections, a summed index of these 3 direct negative behaviors, and the index of indirect negative behaviors) was centered and simultaneously entered into both level 2 equations (i.e., slopes and intercepts), along with centered reports of problem severity, one appropriate interaction term at a time, and a dummy code representing sex (see footnote 3). In the analyses that collapsed across the two studies, a dummy code representing whether the data were collected in Study 1 or Study 2 was entered to control for variance in the average of the two parameters estimated at level 3. We also tested whether any of these interactive effects varied by sex by entering the appropriate Sex X Problem or Sex X Behavior interactions at level 2, and whether any of these interactive effects varied by study by entering the study dummy code to account for variance in the average of all of the effects estimated at level 3.

Before addressing whether observed negative behaviors interacted with initial problem severity to account for the slopes of the trajectory, i.e., changes in satisfaction, we first present the interactive effects of behavior on the intercepts estimated by Equation 1, i.e., initial satisfaction. These results are reported in the top half of Table 7. As that section of the table reveals, a number of negative interactions emerged between direct negative behaviors and initial problems. Specifically, the summed index of negative behavior interacted with initial problem severity to account for variance in spouses' initial satisfaction in Study 2 and rejections interacted with initial problems to account for spouses' initial satisfaction in the analysis that collapsed across the two studies. Additionally, three interactions emerged between direct negative behavior and initial problems among wives only. Specifically, a significant Sex X Commands X Problem interaction emerged in Study 1 ($B = -144.34$, $SE = 63.27$, $t(131) = -2.28$, $p < .05$, $r = .20$), such that the significant Commands X Problems interaction reported in the top of Table 7 emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = -7.25$, $SE = 48.24$, $t(131) = -0.15$, $p > .50$, $r = .01$. Likewise, a significant Sex X Rejection X Problem interaction emerged in Study 2 ($B = -201.40$, $SE = 101.09$, $t(253) = -1.99$, $p < .05$, $r = .12$), such that the Rejection X Problems interaction reported in the top of Table 7 emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = -89.02$, $SE = 56.21$, $t(253) = -1.58$, $p = .11$, $r = .10$. Finally, a significant Sex X Commands X Problem interaction emerged in the analysis that collapsed across both studies ($B = -136.99$ $SE = 53.31$, $t(395) = -2.57$, $p < .05$, $r = .13$), such that the Commands X Problems interaction reported in the top of Table 7 emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = 9.83$, $SE = 40.48$, $t(395) = 0.24$, $p > .50$, $r = .01$. None of the Study X Behavior X Problem interactions reached significance, indicating that none of the effects varied significantly across study.

The significant interactions were deconstructed to determine whether and when the simple effects of behavior on initial satisfaction reached significance within the sample. Typically, the simple effects of a moderated variable are determined at specific values of the moderating variable, e.g., one standard deviation above and below the mean as recommended by Cohen and Cohen (1983). Indeed, researchers and practitioners often want to know the effect of one variable at a specific, meaningful value of another variable. As Cohen and Cohen pointed out, however, because one standard deviation is sometimes arbitrary and sample-specific, those values may not always provide the most complete theoretical description of an interactive relationship, as they may leave meaningful significant simple effects that emerge just beyond these arbitrary limits undetected. For this reason, we followed instructions provided by Preacher, Curran, and Bauer (2006) to use the Johnson-Neyman method (Johnson & Neyman, 1936) to identify the exact levels of problem severity at which each direct negative behavior

demonstrated significant associations with initial satisfaction – i.e., the regions of significance of the simple effects of behavior. This procedure yielded a similar pattern of results across all significant interactions. Specifically, each negative behavior was significantly positively associated with initial satisfaction among spouses facing more minor problems (lower region of significance was −1.84 *SD* for wives' commands in Study 1, −1.55 *SD*s for the summed index of negative behavior in Study 2, +0.09 *SD*s for wives' rejections in Study 2, −1.70 *SD*s for wives' commands in the analysis that collapsed across both studies, and −2.01 *SD*s for rejections in the analysis that collapsed across both studies), but significantly negatively associated with initial satisfaction among spouses facing more severe problems (upper region of significance was +0.29 *SD* for wives' commands in Study 1, +0.50 *SD*s for the summed index of negative behavior in Study 2, +1.38 *SD*s for wives' rejections in Study 2, +0.14 *SD*s for wives' commands in the analysis that collapsed across both studies, and +1.84 *SD*s for rejections in the analysis that collapsed across both studies). In other words, the spouses who were least happy initially were those who engaged in the most negative behavior and experienced the most severe problems.

Does problem severity moderate the association between initial negative behavior and subsequent changes in relationship satisfaction?

But the central question addressed by the current study was whether direct negative behaviors interacted with the severity of initial problems to account for *changes* in marital satisfaction over time. Accordingly, regression coefficients and effect size estimates of the extent to which all behaviors interacted with initial problems to account for variance in the slopes estimated by Equation 1 are presented in the bottom half of Table 7. As that section of the table reveals, consistent with predictions, a pattern of significant positive interactions emerged across all direct negative behaviors and across bith studies. Notably, in the analyses that collapsed across both studies and thus provided the most power, the summed index and every type of direct negativity significantly interacted with initial problem severity to predict changes in satisfaction over time. Also notably, consistent with predictions, none of the interactions involving indirect negative behavior reached statistical significance. Tests of the Study X Behavior X Problem interactions revealed that only one of the effects that emerged in the analyses that collapsed across both studies varied significantly across study: the interactive effect of the summed index of direct negative behaviors was significantly stronger in Study 1 than in Study 2. Nevertheless, that effect was significant in the separate analyses conducted separately on each study. Tests of the Sex X Behavior X Problem interactions revealed that a few of the interactive effects also varied by sex. Specifically, the Sex X Commands X Problem interaction in Study 1 was significant ($B = 21.83$, $SE = 9.75$, $t(131) = 2.24$, $p < .05$, $r = .19$), such that the Commands X Problems interaction reported in Table 7 only emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = 8.13$, $SE = 11.37$, $t(253) = 0.72$, $p = .48$, $r = .06$. The Sex X Direct X Problems interaction in Study 2 was also significant ($B = 46.39$, $SE = 20.04$, $t(255) = 2.32$, $p < .05$, $r = .14$), such that the Direct X Problems interaction reported in Table 7 only emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = 3.95$, $SE = 15.37$, $t(255) = 0.26$, $p > .50$, $r = .02$. And the Sex X Rejections X Problems interaction in Study 2 was also significant ($B = 258.53$, $SE = 106.99$, $t(253) = 2.42$, $p < .05$, $r = .15$, such that the Rejection X Problems interaction reported in Table 7 only emerged among wives, whereas the corresponding effect for husbands did not reach significance, $B = -45.11$, $SE = 39.29$, $t(253) = -1.15$, $p = .25$, $r = .07$. However, when the data were collapsed across the two studies, thus maximizing the power to detect effects, only the Sex X Commands X Problems interaction was significant ($B = 22.44$, $SE = 9.97$, $t(395) = 2.25$, $p < .05$, $r = .11$), such that the Commands X Problems interaction reported in Table 7 only emerged among wives, whereas the corresponding effect for husbands did not reach significance ($B = 5.39$, $SE = 10.95$, $t(395) = 0.49$, $p > .50$, $r = .02$).

To view the nature of these interactions, the predicted means of change in satisfaction were plotted for spouses one standard deviation above and below the mean on each negative behavior at all levels of problem severity. Plots depicting the results of the analyses that collapsed across both studies are depicted in the first column of Figure 1. As can be seen there, consistent with predictions, higher levels of each measure of direct negative behaviors were associated with steeper declines in satisfaction in the context of marriages facing relatively minor problems, whereas those same negative behaviors were associated with more stable satisfaction in the context of marriages facing more severe problems. In contrast, but also consistent with predictions, as can be seen in the last plot of the first column of Figure 1, consistent with the non-significant interactions involving indirect negative behavior, the association between indirect negative behaviors and changes in satisfaction did not vary even across all 6 standard deviations of the severity of the problems experienced in these samples.

To determine the regions at which each behavior was significantly negatively versus positively associated with changes in satisfaction, we identified the regions of significance of the simple effects of negative behavior according to procedures described by Preacher et al (2006). Results of these simple slopes analyses are presented in Table 8. As the table reveals, each negative behavior demonstrated significant negative associations with changes in satisfaction among spouses facing relatively minor problems, with lower regions of significance ranging from 0.27 *SD*s above the mean to more than 3 *SD*s below the mean on initial problem severity, depending on the sample and behavior. Nevertheless, these same behaviors also demonstrated significant positive associations between negative behavior and changes in satisfaction among spouses facing more severe problems, with upper regions of significance ranging from 0.42 *SD*s above the mean to more than 3 *SD*s above the mean, depending on the sample and behavior. In other words, whether spouses' direct negative behaviors demonstrate negative or positive effects on changes in their marital satisfaction over time depends on the severity of the problems those spouses face in their relationships.

Were the interactive effects of direct negative behaviors significantly different from the interactive effects of indirect negative behaviors?

Although the significance of the interactive effects of direct negative behavior and the non-significant interactive effects of indirect negative behavior are consistent with the prediction that direct and indirect negative behavior would differentially interact to predict satisfaction, an additional set of analyses was conducted to determine whether the interactive effect of each measure of direct negative behavior was *significantly* different from the interactive effect of the indirect negative behaviors. Specifically, the analyses that collapsed across the two studies to account for between-subject variance in changes in satisfaction, and thus offered the most power to detect effects, were repeated except this time the interaction involving indirect negative behavior was entered along with and compared to one of each of the four interactions involving each measure of direct negative behavior. The results of this analysis are reported in the top portion of Table 9. As can be seen by the *chi-square* values reported there, the interactive effects of the summed index, commands, and rejections on changes in satisfaction were significantly stronger than the interactive effect involving indirect negative behavior.

Were the interactive effects of behavior-focused negative behaviors significantly different from the interactive effects of character-focused negative behaviors?

Likewise, although significant interactive effects emerged for rejections, we conducted additional analyses to determine whether those interactive effects were weaker than the interactive effects of blames and commands, as suggested by previous theory. Specifically, the analyses that collapsed across the two studies to account for between-subject variance in changes in satisfaction, and thus offered the most power to detect effects, were repeated except this time the interaction involving blames was entered along with and compared to the

interaction involving rejections in one model and the interaction involving wives' commands was entered along with and compared to the interaction involving wives' rejections in another model. The results of these analyses are reported in the bottom portion of Table 9. As can be seen by the *chi-square* values reported there, both comparisons failed to reach significance, suggesting the interactive effects of blames and commands on changes in satisfaction were not different from the interactive effects of rejections on changes in satisfaction.

Do direct negative behaviors interact with problem severity to predict changes in marital satisfaction through changes in the severity of the problems themselves?

Finally, we addressed the mechanism through which we expected exhibiting more direct negative behaviors in relationships characterized by more significant problems to predict more stable satisfaction -- changes in the severity of the problems themselves. We tested this mediational prediction by computing asymmetric confidence intervals for the mediated effect, following the procedures described by MacKinnon, Fritz, Williams, & Lockwood (2007). Those procedures required two sets of additional analyses. First, we conducted analyses to estimate the effects of the interactions between each measure of negative behavior and initial problem severity on the predicted mediator -- changes in problem severity. Specifically, we repeated the analyses testing for the interactive effects of behavior on changes in satisfaction, except this time we substituted spouses' reports of problem severity at each wave of measurement for their reports of satisfaction in Equation 1 to form the following level-1 HLM model:

$$Y_{ij}(\text{Problem Severity}=\pi_{0ij}(\text{Intercept})+\pi_{1ij}(\text{Time of Assessment})+e_{ij} \quad \text{[Equation 2]}$$

Second, we estimated the association between changes in problem severity and changes in marital satisfaction over time through the following level 1 model:

$$Y_{ij}(\text{Marital Satisfaction})=\pi_{0ij}(\text{Intercept})+\pi_{1ij}(\text{Time of Assessment})+\pi_{2ij}(\text{Problem Severity})+e_{ij} \quad \text{[Equation 3]}$$

where we controlled for the effects of each interaction term on every parameter at level 2 (i.e., intercept, time slope, and problems slope). Given that the significance of the interactive effects of behavior on satisfaction did not vary across the two studies, we collapsed across the two studies for these analyses to be most parsimonious and to obtain the greatest power, but, as we did in the analyses on changes in satisfaction, we controlled for variance due to study and sex and also estimated the appropriate Study X Effect and Sex X Effect interactions to determine whether any effect varied across sex or study.

The results of the first set of additional analyses are reported in the first two columns of Table 10. As can be seen there, as was the case regarding changes in satisfaction, significant interactions emerged between initial problem severity and all indices of direct negative behavior. In contrast, the interaction between indirect negative behavior and initial problem severity did not reach significance ($B = 0.05$, $SE = 0.56$, $t(398) = 0.08$, $p > .5$, $r = .00$). Notably, none of these effects varied across sex or study.

Plots of all interactions are depicted in the second column of Figure 1. As can be seen there, the patterns of these interactive effects of behavior on changes in problem severity were similar to the interactive effects of behavior on changes in satisfaction, except reversed. Specifically, more direct negative behaviors were associated with more substantial growth in problem severity over time among spouses facing relatively minor problems, whereas those same behaviors were associated with declines in problem severity among spouses facing more serious problems. As can be seen in the last plot in the second column of Figure 1, in contrast,

the association between indirect negative behavior and changes in problem severity did not vary across all 6 *SD*s of initial problem severity in these samples. Deconstructing these interactions statistically by identifying the regions of significance demonstrated that each negative behavior was indeed significantly positively associated with changes in problem severity among spouses facing relatively minor problems (lower region of significance was +0.71 *SD* for the summed index of direct negative behavior, +0.77 *SD* for blames, −1.23 *SD*s for commands, and < −3 *SD*s for rejections), but also significantly negatively associated with changes in problem severity among spouses facing more severe problems (upper region of significance was +2.71 *SD*s for the summed index of direct negative behavior, +2.57 for blames, +1.33 *SD*s for commands, and + 2.07 *SD*s for rejections).

The results of the second set of additional analyses that tested the effects of changes in problem severity on changes in satisfaction are presented in the second two columns of Table 10. As can be seen there, changes in problem severity were significantly negatively associated with changes in satisfaction even after controlling each interaction between negative behavior and initial problem severity, indicating that couples who experienced worsening problems over time became less satisfied over time. Notably, none of these effects varied across sex or study.

Finally, for each type of behavior, we multiplied these two components of the indirect effect together to obtain an estimate of the mediated effect and computed the corresponding confidence intervals to determine whether those effects were different from zero. The results of those analyses are reported in the last two columns of Table 10. As can be seen there, none of the confidence intervals contained zero, indicating that each mediated effect was different from zero. However, whereas the mediated effects involving direct negative behavior, blames, and commands were significant using a 95% confidence interval, the mediated effect of the Rejection X Problems effect was only significant using an 80% confidence interval, indicating it was only marginally significant using a one-tailed test. Notably, once changes in problem severity were controlled, interactions between initial problem severity and the summed index of negative behavior, blames, and rejections no longer significantly predicted changes in satisfaction (for direct negative behavior, $B = 2.91$, $SE = 3.52$, $t(398) = 0.83$, $p > .40$, $r = .04$; for blames, $B = 1.99$, $SE = 10.14$, $t(398) = 0.20$, $p > .50$, $r = .01$; for rejections, $B = 2.10$, $SE = 7.20$, $t(398) = 0.29$, $p > .50$, $r = .01$), suggesting that changes in problems fully mediated the interactive effects of behavior and initial problem severity on changes in satisfaction. Nevertheless, even after changes in problem severity were controlled, the interaction between wives' commands and initial problem severity continued to significantly account for variance in changes in wives' marital satisfaction over time, $B = 19.37$, $SE = 5.91$, $t(395) = 3.28$, $p < .01$, $r = .16$. Notably, because none of the components of these mediated effects varied across sex or study, none of the mediated effects varied across sex and study, including the mediated effect of the Commands X Problems interaction for which the direct effect on changes in satisfaction was only significant among wives.

Discussion

Study Rationale and Summary of Results

It is inevitable that partners will encounter problems with one another as they navigate the ups and downs of a long-term intimate relationship. It is also inevitable that partners will at times feel the urge to respond to such problems with negative verbal behaviors. Should they act on those urges or suppress them? The two longitudinal studies described here suggest that the answer to this question depends on the severity of the problems themselves. Although direct negative behaviors were negatively associated with changes in satisfaction when exchanged in the context of relationships facing problems that were relatively minor on average, those same behaviors were positively associated with changes in satisfaction when exchanged in the context of relationships facing more serious problems. Further, these interactive effects were

mediated by changes in the severity of the problems themselves, such that direct negative behaviors tended to exert their effects on satisfaction by making minor problems worse but severe problems better.

Though the majority of these interactive effects did not vary across husbands and wives, a few emerged only among wives. Though not predicted, this sex difference is consistent with prior research. Specifically, the adaptive effects of negative behavior identified in the previous studies reported by Karney and Bradbury (1997) and Cohan and Bradbury (1997) emerged only for wives' negative behavior. Additionally, the interactive effects between negative attributions and problem-severity reported by McNulty et al. (2008) emerged more consistently among wives than husbands. Those previous sex differences, along with the few sex differences that emerged here, suggest that negative cognitions and negative behavior may be more helpful to women than to men. Such a possibility makes sense given that the benefits of such negative processes appear to emerge only in the context of severe problems and given that women tend to report more severe problems in their relationships (Levinger, 1976; Macklin, 1978; Rubin, Peplau, & Hill, 1981). Nevertheless, it is important to note that both the current studies and previous research (McNulty, 2008b; McNulty et al., 2008) indicate that direct negative behavior and negative cognitions can be adaptive even among men facing severe problems, suggesting the beneficial effects of such negative processes, though it may emerge more consistently among women, are not unique to women.

As predicted, the interactive effects that emerged for direct negative behaviors did not emerge for indirect negative behaviors. In fact, direct tests indicated the severity of initial problems more strongly moderated the effects of direct negative behaviors than they moderated the effects of indirect negative behaviors, which were associated with lower levels of satisfaction that were stable over time regardless of the severity of the problems faced in the relationship. This finding makes sense in terms of the rationale set forth for why negative behaviors might be adaptive in the context of more severe problems. Specifically, as argued and demonstrated by Overall et al. (2009), whereas confronting problems negatively but directly can motivate change in the partner and provide concrete information regarding what changes need to be made, confronting problems negatively but indirectly provides rather ambiguous information regarding the necessary course of action and thus tends to be ineffective at resolving problems.

Finally, we found no evidence that behavior-focused negative statements were more beneficial to relationships facing severe problems than character-focused negative statements. Rather, just like the behavior-focused negative statements, rejections interacted with initial problems to predict changes in satisfaction, and these interactive effects were mediated (although only marginally) by changes in the problems themselves. Further, direct comparisons indicated that the interactive effects of rejections on satisfaction did not significantly differ from the interactive effects of either blames or commands on changes in satisfaction.

Theoretical, Methodological, and Practical Implications

The current findings have important theoretical, methodological, and practical implications. Regarding theory, these studies join others in highlighting the importance of more contextual approaches to the study of relationships by demonstrating that factors previously shown to have consistent negative main effects on relationships actually predict benefits for some couples. As described previously, for example, McNulty et al. (2008) demonstrated that negative attributions, which tend to demonstrate negative main effects in most samples (for review, see Bradbury & Fincham, 1990), only predict declines in satisfaction among couples experiencing rather minor problems whereas they predict more stable satisfaction among couples experiencing more severe problems. Likewise, McNulty (2008b) reported that the tendency to be less forgiving, which demonstrates negative main effects on relationships in most samples (for review, see Fincham, Hall, & Beach, 2006), only predicted declines in

satisfaction among couples married to partners who behaved negatively only infrequently whereas it predicted more stable satisfaction among couples married to partners who behaved negatively more frequently. Given that such proximal processes mediate the effects of more distal factors on relationship outcomes (Karney & Bradbury, 1995), future research may benefit by examining the limiting conditions of the effects of more distal factors on relationship outcomes as well. Indeed, Little, McNulty, and Russell (in press) recently reported that the robust negative effects of attachment insecurity are limited to spouses who engage in less frequent sex and Hellmuth and McNulty (2008) recently reported that negative effects of neuroticism on intimate partner violence are limited to spouses who posses fewer problem-solving skills and experience more stress.

Regarding methodology, the current findings suggest that collapsing across similar but unique behaviors may obscure any different effects of those behaviors. Specifically, although direct negative behaviors interacted with the severity of initial problems to account for changes in satisfaction across two studies, indirect behaviors did not. Consistent with findings reported by Overall et al. (2009), subsequent analyses suggested that these differential effects of direct versus indirect behaviors emerged because direct negative behaviors predicted more stable problem severity over time among spouses faces more serious problems whereas indirect negative behaviors did not. One factor contributing to researchers' tendencies to collapse across all negative codes may be the "negative" labels applied to them. Given that the effects of behavior do not depend on the content of those behaviors alone, but instead depend on the interaction between that content and the context of the relationship in which those behaviors are expressed, researchers may benefit by avoiding such labels and instead examining the positive and negative effects of specific behaviors independent of any presuppositions they may have about them.

Finally, the current findings have important implications for marital interventions. Traditional behavioral marital therapies (BMT; Jacobson & Margolin, 1979) and contemporary cognitive-behavioral marital therapies (e.g., Jacobson & Christensen, 1996) both recommend that partners avoid engaging in various "negative" behaviors when discussing their problems. The current findings, in contrast, suggest that, although all couples may benefit by avoiding indirect negative behaviors, and couples facing only minor problems may benefit by also avoiding direct negative behaviors, couples facing more severe problems may benefit from engaging in direct negative behaviors. Perhaps this inconsistency between the current findings and existing interventions explains why marital therapy is only effective among less that 50% of couples seeking treatment (see Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998 and Jacobson & Addis, 1993). Consistent with this possibility, recent research indicates that the couples who are least likely to benefit from marital therapy are those facing the most severe problems (Baucom, Atkins, Simpson, & Christensen, 2009). As Jacobson and Addis (1993, p. 89) argued:

> clinicians' notions of constructive communication may not have much to do with what is really good for couples in the long run… arguing, attempts to persuade, and the like are not to be stamped out, but rather to be encouraged as long as couples eventually return to the task of resolution…. variables related to life stress and individual problems seem important things to consider when recommending couple therapy.

Additional Questions

Various methodological constraints limited our ability to address several additional important questions that may be fruitful avenues for future research. First, the current studies focused exclusively on negative verbal content and thus overlooked other behaviors that may interact with initial problem severity to predict changes in relationship satisfaction in similar ways. For example, like the negative verbal content examined here, negative affects (e.g., anger) may similarly demonstrate benefits to relationships facing more severe problems but harm

relationships facing more minor problems. Also, although various positive behaviors (e.g., concessions, expressions of forgiveness) may benefit relationships facing more minor or infrequent problems, those same behaviors may harm relationships facing more serious partner transgressions that need to be resolved (for similar discussion, see McNulty, 2008b).

Second, the behaviors examined here were assessed only at Baseline. Although the ability of such measures to predict changes in satisfaction over several subsequent years of marriage is impressive, it is possible that other meaningful effects could have been obtained with repeated assessments of these variables. For example, we were unable to assess potentially important within-person differences in the way spouses behave when discussing different types of problems. That is, the same person may benefit by discussing problems that vary in severity with different rates of negative behaviors. Future research may benefit by examining whether spouses who most successfully discuss different problems with different types of behavior are most successful in their relationships over time.

Strengths and Limitations

Our confidence in the results reported here is enhanced by a number of strengths of the methods and the design. First, the findings replicated across two longitudinal studies using growth curve analyses that provided more reliable and valid estimates of within-person change than traditional two-wave longitudinal designs (Bryk & Raudenbush, 1987). Second, findings replicated across multiple types of observed behaviors, suggesting the contextual effects demonstrated here were not idiosyncratic but indicative of broader behavioral effects. Third, whereas the average rate of retention in prior longitudinal research on marriage is 69% (Karney & Bradbury, 1995), analyses in the current study were able to use data from 100% (Study 1) and 87% (Study 2) of the initial samples, reducing the likelihood that the results may have been influenced by biases due to attrition.

Despite these strengths, several factors nevertheless limit interpretations of the current findings until they can be extended. First, the current findings are correlational and thus cannot support strong causal conclusions. Although the longitudinal nature of the current data helps rule out the possibility that changes in satisfaction caused interactions between initial behavior and initial problems, it remains possible that unmeasured third variables independently caused interactive patterns between behavior and problems and changes in relationship outcomes. Future, treatment-outcomes research that manipulates different behaviors in relationships that face problems that vary in severity may benefit by ruling out this and other alternative interpretations of the current findings. Second, given our interest in the extent to which the tendency to engage in various behaviors during a sample of problem-solving discussion should affect all problems faced in the relationship, we did not assess the development of the specific problem targeted in the discussion. Accordingly, it is unclear whether the associations that emerged between behavior and changes in the average severity of the couples' problems emerged due to associations between the behaviors exchanged during the discussions and the problems targeted in those discussions (see Overall et al., 2009), or by the associations between general behavioral tendencies and changes in various problems. Future research may benefit by examining this issue. Third, given that a high score on the marital problems measure could indicate a few severe problems or numerous more moderate problems, it is unclear whether these two contexts differentially interact with direct negative behaviors to predict changes in satisfaction over time. Future research may benefit by addressing this issue as well. Finally, because these data were obtained from relatively homogeneous samples of couples, generalizations to other samples should be made with caution. For instance, people in the first few years of their marriages are especially prone to change (Bramlett & Mosher, 2002). Part of the reason for this change is that they encounter many new challenges in these early years (Cherlin, 1992). If the effects of negative behaviors are uniquely moderated by such challenges,

then more established marriages may show less positive reactions to them. Also, the couples examined in both studies were primarily White. Although we are aware of no reasons to expect that the way people's behaviors within their relationships affect the way those relationships develop should differ across different races and ethnicities, other factors such as stress, education, and income that do covary with race and ethnicity may interact with the effects observed here. Future research may benefit by examining the prevalence and effects of negative behaviors in other populations.

Conclusion

The current research highlights the important role played by the broader interpersonal context in determining the influence that various factors may exert on relationship development. Not only did the strength of the effects of direct negative behavior on changes in relationship satisfaction vary according to the severity of the problems couples faced in their relationships, but so did the *direction* of those effects. In demonstrating that some "negative" behaviors can be positive for some relationships, the current studies join others (McNulty, 2008b; McNulty & Karney, 2004; McNulty et al., 2008) in showing that what helps some relationships may hurt others and vice versa. Accordingly, future research may benefit by examining not only the main effects of various factors, but also the limits of those effects.

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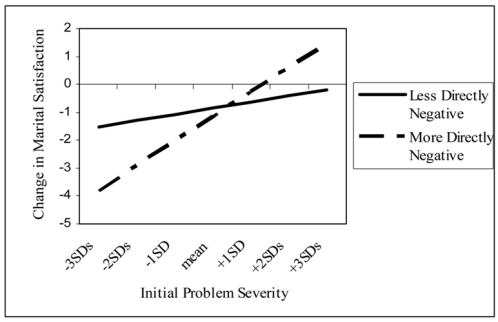
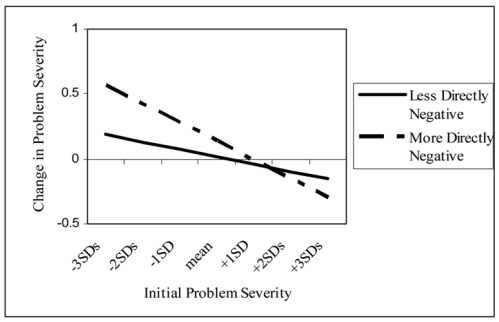
Direct Negative X Initial Problems on Changes in Satisfaction

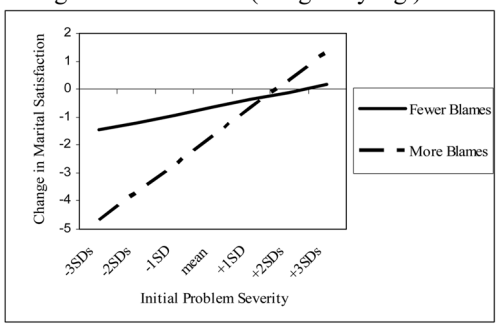


Direct Negative X Initial Problems on Changes in Problems

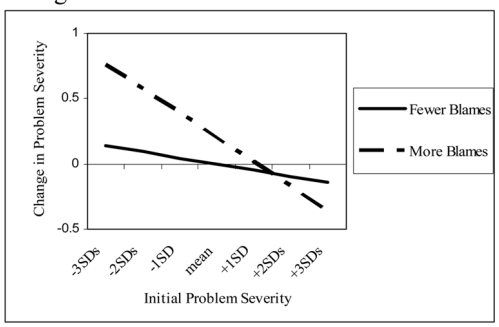


Panel A

Blames X Initial Problems on Changes in Satisfaction (marginally sig.)

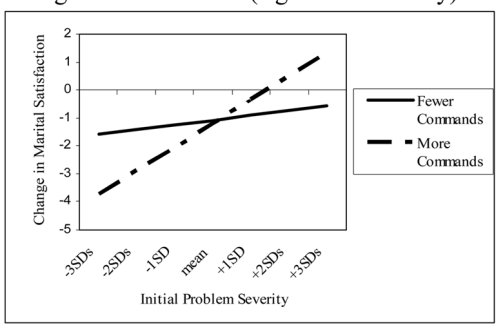


Blames X Initial Problems on Changes in Problems

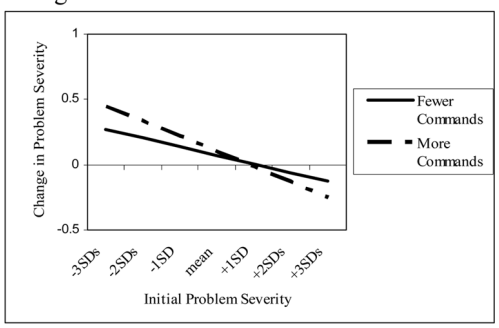


Panel B

Commands X Initial Problems on Changes in Satisfaction (sig. for wives only)



Commands X Initial Problems on Changes in Problems



Panel C

Rejections X Initial Problems on

Rejections X Initial Problems on

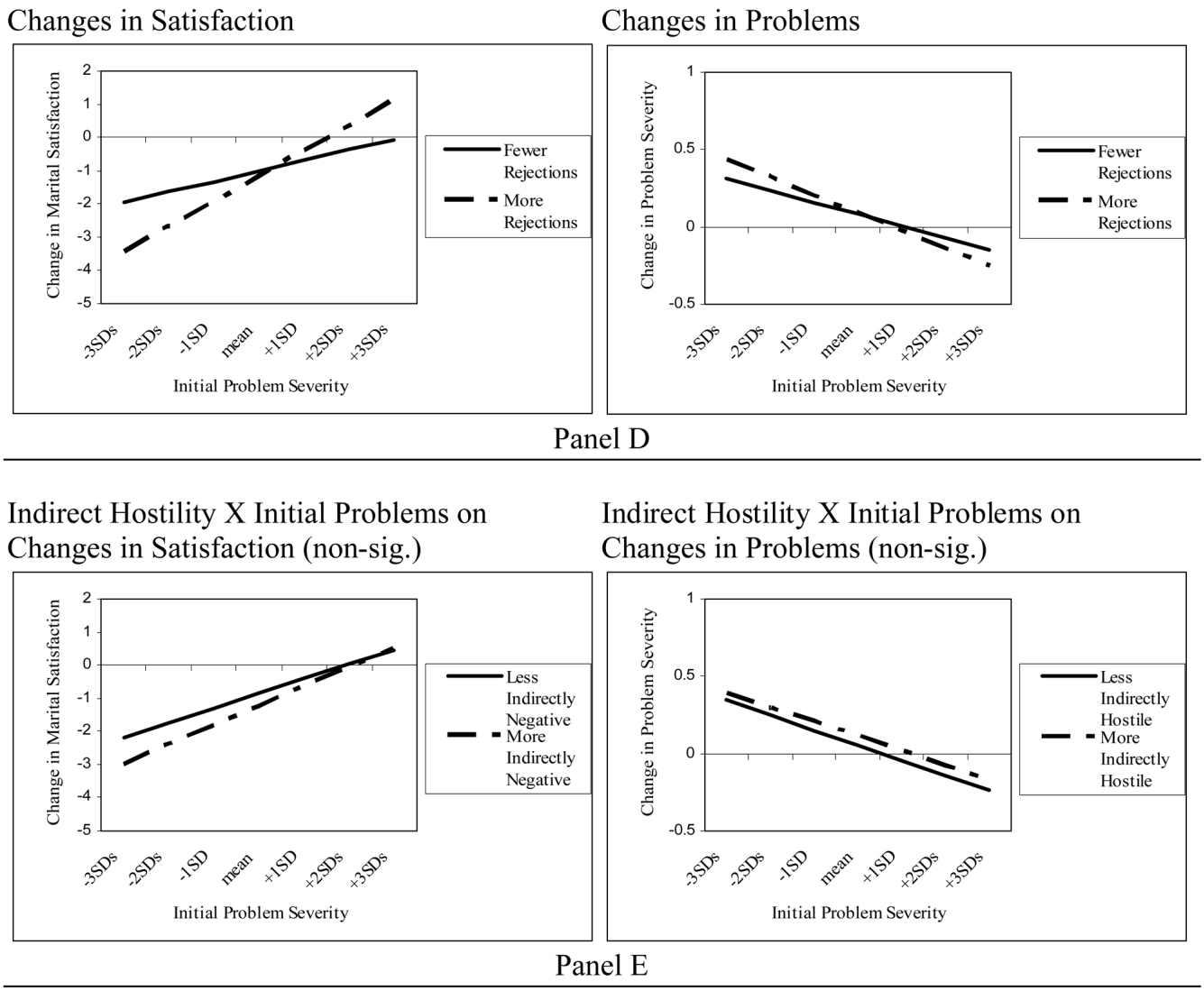


Figure 1.
Interactions between Behavior and Initial Problem Severity accounting for Changes in Marital Satisfaction and Problem Severity

Table 1

Sample Demographics

Spouse	Age		Years Education		Full-Time Employed	Full-Time Students	Income Grp.		Caucasian
	M	*SD*	*M*	*SD*	%	%	*Median*	(*SD*)	%
Study 1(N=72)									
Husbands	24.92	(4.39)	14.15	(2.48)	74%	11%	$15–20K	($4.83K)	93%
Wives	23.54	(3.85)	14.72	(2.24)	49%	26%	$15–20K	($4.41K)	96%
Study 2(N=135)									
Husbands	25.90	(4.57)	15.69	(2.38)	70%	26%	$20–25K	($7.21K)	91%
Wives	24.21	(3.59)	18.14	(1.88)	56%	28%	$10–15K	($5.41K)	93%

Table 2

Descriptive Statistics for Independent Variables Measured at Time 1

Measure	Husbands		Wives	
	M	*SD*	*M*	*SD*
Initial Problem Severity				
Study 1	3.07	(1.47)	2.94	(1.19)
Study 2	2.32	(1.13)	2.42	(1.19)
Commands				
Study 1	0.02	(0.03)	0.02	(0.03)
Study 2	0.01	(0.02)	0.01	(0.02)
Blames				
Study 1	0.01	(0.02)	0.02	(0.02)
Study 2	0.03	(0.04)	0.03	(0.05)
Rejections				
Study 1	0.01	(0.02)	0.01	(0.02)
Study 2	0.01	(0.02)	0.01	(0.03)
Indirect Hostility				
Study 1	0.06	(0.06)	0.06	(0.07)
Study 2	0.04	(0.06)	0.05	(0.06)

Note. Means and standard deviations of each behavior are proportions of speaking turns during which partners exhibited the behavior.

Table 3

Correlations among Independent Variables.

			Study 1		
	Problem Severity	**Commands**	**Blames**	**Rejections**	**Indirect Hostility**
Problem Severity	**.38****	.07	.29*	.31**	.19
Commands	.13	**.27***	.32**	.11	.48**
Blames	.14	.55***	**.49*****	.34**	.54***
Rejections	−.01	.42***	.34**	**.44****	.41**
Indirect Hostility	.12	.55***	.48***	.38**	**.74*****
			Study 2		
	Problem Severity	Commands	Blames	Rejections	Indirect Hostility
Initial Problem Severity	**.36****	.11	.27**	.23**	.16†
Commands	−.05	**.11**	.30***	.09	.11
Blames	.02	.32**	**.31*****	.40**	.43***
Rejections	−.02	.16†	.18*	**.11**	.23**
Indirect Hostility	−.06	.13	.32**	.28**	**.40*****

Note. Wives' correlations appear above the diagonal, husbands' correlations appear below the diagonal, and correlations between husbands and wives appear on the diagonal in bold.

†p < .10,

**p* < .05,

***p* < .01,

****p* < .001

Table 4

Mean Marital Satisfaction Scores across Waves of Measurement for Husbands and Wives.

Study 1								
Husbands								
M	93.23	91.90	91.54	90.53	89.57	90.98	88.89	89.52
SD	12.53	12.93	14.42	14.56	15.06	11.84	13.21	14.36
N	70	69	65	57	53	53	44	50
Wives								
M	95.82	92.14	91.19	88.56	89.57	87.75	91.33	91.89
SD	10.75	13.05	13.91	17.17	15.06	16.45	11.46	11.34
N	72	72	68	61	53	53	44	50
Study 2								
Husbands								
M	97.46	94.28	92.11	--	--	--	--	--
SD	8.02	11.24	13.37	--	--	--	--	--
N	134	111	87	--	--	--	--	--
Wives								
M	97.64	93.85	92.75	--	--	--	--	--
SD	8.36	13.52	13.58	--	--	--	--	--
N	134	111	89	--	--	--	--	--

Table 5

Trajectories of Marital Satisfaction.

Parameter	Study 1			Study 2		
	B	*SD*	*r*[a]	*B*	*SD*	*r*[a]
Intercept	93.43	(5.04)	--	100.06	(3.09)	--
Slope	−0.68	(0.27)	.44***	−2.79	(1.94)	.37***

Note. For the *t* test for Study 1, *df* = 71; For the t-test for Study 2, *df* = 134.

[a]The *t* test of the intercepts addresses the hypothesis that the intercepts differ significantly from zero. Because the lowest possible score on each of these measures is greater than zero, these tests are not meaningful and hence are not reported.

*** $p < .001$

Table 6

Main Effects of Negative Behavior on the Trajectory of Marital Satisfaction.

	Intercepts					
	Study 1		**Study 2**		**Both Studies**	
	B	***r***	***B***	***r***	***B***	***r***
Initial Problem Severity	−3.88	−.43***	−4.02	−.34***	−4.51	−.44***
Direct Negative Behavior	−7.99[2]	−.13†	−7.42[2]	−.12*	−8.93[2]	−.13**
Blames	−1.29[3]	−.10	−1.24[3]	−.15**	−1.09[3]	−.10*
Commands	−1.06[3]	−.09	1.36[2]	.01	−1.27[3]	−.09*
Rejections	−1.43[3]	−.10	−9.60[2]	−.05	−1.45[3]	−.09*
Indirect Hostility	−6.64[2]	−.13†	−2.30[2]	−.06	−3.77[2]	−.08†
	Slopes					
	Study 1		Study 2		Both Studies	
	B	*r*	*B*	*r*	*B*	*r*
Initial Problem Severity	8.52[−2]	.36***	8.08[−2]	.01	0.50	.29***
Direct Negative Behavior	2.48	.02	−1.03[2]	−.05	2.38	.01
Blames	−1.15[2]	−.04	7.33	.03	−4.09	−.01
Commands	9.04	.05	−9.10[2]	−.09†	8.21	.03
Rejections	1.19[2]	.04	−4.71[2]	−.04	1.01[2]	.02
Indirect Hostility	−2.26	−.03	−1.00[2]	−.04	−4.69	−.04

Note. In Study 1, *df* = 139 for all effects. In Study 2, *df* = 261 for all effects. In both Studies, *df* = 403 for all effects. All effects are univariate with the exception that the tests in Studies 1 and 2 controlled for sex and tests in the analyses that collapsed across both studies controlsled for sex and study.

† = $p < .10$,

* = $p < .05$,

** = $p < .01$, one-tailed.

Table 7

Interactive Effects of Negative Behavior and Initial Problem Severity on the Trajectory of Marital Satisfaction.

	Intercepts					
	Study 1		Study 2		Both Studies	
	B	***r***	***B***	***r***	***B***	***r***
Direct Negative Behavior	-3.19^{2}	−.10	-5.21^{2}	$-.16^{**}$	-1.99^{2}	−.06
Blames	-7.47^{2}	−.08	-5.35^{2}	−.10	-1.48^{2}	−.02
Commands	$-1.52^{3}{}_{w}$	$-.27^{**}$	4.72^{2}	.04	$-1.25^{3}{}_{w}$	$-.20^{***}$
Rejections	-3.38^{2}	−.05	$-2.90^{3}{}_{w}$	$-.21^{***}$	-6.27^{2}	$-.12^{**}$
Indirect Hostility	-2.67^{2}	−.09	-1.21^{2}	−.03	-2.32^{2}	−.07
	Slopes					
	Study 1		Study 2		Both Studies	
	B	*r*	*B*	*r*	*B*	*r*
Direct Negative Behavior	8.17	$.14^{\dagger}$	$1.75^{2}{}_{w}$	$.18^{**}$	$1.06^{2}{}_{s2}$	$.13^{**}$
Blames	2.27^{2}	$.12^{\dagger}$	4.40^{2}	$.22^{***}$	1.77^{2}	$.08^{\dagger}$
Commands	$3.00^{2}{}_{w}$	$.33^{***}$	-4.85^{2}	−.06	$2.76^{2}{}_{w}$	$.19^{***}$
Rejections	6.45	.10	$2.15^{3}{}_{w}$	$.15^{**}$	1.97^{2}	$.13^{**}$
Indirect Hostility	3.07	.06	−1.93	−.01	2.35	.03

Note. In Study 1, *df* = 136 for analyses involving direct, *df* = 131 for analyses involving wives' commands, *df* = 134 for all other analyses. In Study 2, *df* = 258 for the analysis involving direct and the intercept, *df* = 253 for the analysis involving wives' direct and wives' slope as well as analyses involving wives' rejections, and *df* = 256 for all other analyses. In Both Studies, *df* = 400 for analyses involving direct, *df* = 395 for analyses involving wives' commands, *df* = 398 for all other analyses.

w = effect only significant among wives. s2 = effect stronger in Study 2.

† = $p < .10$,

* = $p < .05$,

** = $p < .01$,

*** = $p < .001$, one-tailed.

Table 8

Regions of Significance of the Simple Effects of Direct Negative Behavior on Changes in Marital Satisfaction.

Negative Behavior	Analysis					
	Study 1		Study 2		Both Studies	
	Negative Simple Effect	Positive Simple Effect	Negative Simple Effect	Positive Simple Effect	Negative Simple Effect	Positive Simple Effect
Direct Negative Behavior	< −3 SD;	> +3 SD	−0.19 SD;	+0.96 SD	−0.84 SD	+1.53 SD
Blames	+0.31 SD;	> +3 SD	−1.64 SD;	+0.42 SD	+0.27 SD	> +3 SD
Commands	−1.00 SD;	+0.47 SD	--	--	−1.07 SD	+0.88 SD
Rejections	--	--	−0.60 SD;	+1.73 SD	−2.25 SD	+1.44 SD

Note. -- = Interaction was not significant

Table 9

Comparing the Interactive Effects of Behavior and Problem Severity on Changes in Satisfaction

Comparison	χ^2
Indirect Hostility X Problems vs.	
Direct Negativity X Problems	2.72*
Blames X Problems	0.98
Commands X Problems	5.54**$_w$
Rejections X Problems	4.04*
Rejections X Problems vs.	
Blames X Problems	0.02
Commands X Problems	1.37$_w$

Note. For all tests, $df = 1$. $_w$ = Because the Commands X Problems interaction was only significant among wives, this comparison was only made among wives.

† = $p < .10$,

* = $p < .05$,

** = $p < .01$, one-tailed.

Table 10

Changes in Problem Severity Accounting for Interactions between Negative Behavior and Changes in Satisfaction.

Interaction	Did the interaction predict changes in problem severity?		Did changes in problems predict changes in satisfaction?		Did changes in problems mediate the effect of the interaction on changes in satisfaction?	
	B	*r*	*B*	*r*	*B*	*CI*
Direct X Problems	−1.41	.16***	−5.55	.61***	7.82	3.15: 12.85
Blames X Problems	−3.36	.19***	−5.49	.57***	18.55	8.99: 28.78
Commands XProblems	−2.03	.15**	−5.43	.56***	11.02	3.77: 18.88
Rejections X Problems	−1.64	.08†	−5.50	.57***	9.02	1.73: 16.41$_m$

Notes: For interactive effects on changes in problems, *df* = 400 for direct and *df* = 398 for all others. For effects of changes in problems on satisfaction, *df* = 201 (because the effect was allowed to be random).

m = This effect was marginally significant with a one-tailed test (i.e., the effect was only significant using the reported 80% confidence interval).

† = $p < .10$,

** = $p < .01$

*** = $p < .001$, one-tailed.