Stress Resilience in Early Marriage: Can Practice Make Perfect?

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As all couples experience stressful life events, addressing how couples adapt to stress is imperative for understanding marital development. Drawing from theories of stress inoculation, which suggest that the successful adaptation to moderately stressful events may help individuals develop a resilience to future stress, the current studies examined whether experiences with manageable stressors early in the marriage may serve to make the relationship more resilient to future stress. In Study 1, 61 newlywed couples provided data regarding their stressful life events, relationship resources (i.e., observed problem-solving behaviors), and marital satisfaction at multiple points over 2½ years. Results revealed that among spouses displaying more effective problem-solving behaviors, those who experienced moderate stress during the early months of marriage exhibited fewer future stress spillover effects and reported greater increases in felt efficacy than did spouses who had less experience with early stress. Study 2 examined stress resilience following the transition to parenthood in a new sample of 50 newlywed couples. Again, spouses who experienced moderate stress during the early months of marriage and had good initial relationship resources (i.e., observed support behaviors) reported greater marital adjustment following the transition to parenthood than did spouses who had good initial resources but less prior experience coping with stress. Together, results indicate that entering marriage with better relationship resources may not be sufficient to shield marital satisfaction from the detrimental effects of stress; rather, couples may also need practice in using those resources to navigate manageable stressful events.

Keywords: stress, relationship satisfaction, transition to parenthood, resilience, spillover

Marriages unfold within broader environmental contexts that at times test the durability of the relationship. When the marital context contains numerous stressful life events, such as work stress or financial difficulties, marriages often suffer, a phenomenon referred to as *stress spillover* (Randall & Bodenmann, 2009; Repetti, Wang, & Saxbe, 2009; Story & Bradbury, 2004). For example, between-subjects comparisons of couples experiencing high versus low levels of external stress indicate that couples facing more severe stress experience greater declines in their marital satisfaction over the early years of marriage (Bodenmann, 1997; Karney, Story, & Bradbury, 2005). Similarly, longitudinal research examining within-subject changes in stress and marital satisfaction over time has revealed that spouses' marital satisfaction tends to be lower after periods during which spouses faced many stressors and higher after periods that were relatively low in stressors (Karney et al., 2005; Neff & Karney, 2004, 2007). Thus, a key message emerging from the stress and marriage literature is that stressful contexts adversely impact marital quality.

Yet, this perspective fails to account for accumulating evidence indicating that although many relationships do crumble in the face of hardships, others may emerge from stressful experiences relatively unscathed. Negative life events, such as cancer (Gritz,

Wellisch, Siau, & Wang, 1990), the death of a child (Lehman, Lang, Wortman, & Sorenson, 1989), and experiencing a natural disaster (Cohan & Cole, 2002), have actually predicted marital improvements among some couples. Consequently, several theories of stress have begun to shift away from an emphasis on the harmful effects of stress to consider the conditions under which stress may serve to enhance well-being (Story & Bradbury, 2004; Updegraff & Taylor, 2000). For instance, stressful life events can provide opportunities for growth by mobilizing previously untapped coping resources and increasing confidence in one's ability to surmount stress (Updegraff & Taylor, 2000). In this way, coping with manageable stress may stimulate positive changes that make the successful adaptation to future stressors more likely (Holahan & Moos, 1990; McCubbin & Patterson, 1983; Meichenbaum, 1985). As a result, individuals who are exposed to moderately stressful experiences and who have the initial resources necessary to overcome those stressors may develop a resilience to the deleterious effects of later stress.

Though evidence for the potential positive effects of stress is growing (Seery, Holman, & Silver, 2010; Updegraff & Taylor, 2000), to date there is no empirical research examining these kinds of stress resilience effects within marriage. Thus, the current article addresses the gap between the research on stress spillover and theories of stress resilience by examining whether evidence of stress resilience can be found among couples navigating the early years of marriage. Elaborating this idea, the first section of the introduction more thoroughly reviews prior work demonstrating the detrimental effects of stress and describes the mechanisms that may underlie these stress spillover effects. The next section explores how practice coping with small stressors may help inoculate

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spouses against pernicious future stressors. The final section describes two studies designed to examine whether spouses who are exposed to moderate stress early in the marriage and are equipped with the initial relationship resources needed to successfully navigate that stress may have relationship appraisals that are more resilient to the effects of future stressors.

Stress as a Hindrance to Adaptive Relationship Functioning

Though the propensity for stressful contexts to weaken marital satisfaction has long been established, research has only recently elaborated on the precise mechanisms underlying these spillover effects. It has been argued that stressful life circumstances may hamper spouses' efforts to engage in relationship-promotive behaviors (Neff, in press; Neff & Karney, 2009; Randall & Bodenmann, 2009). Consistent with the popular notion that a healthy marriage requires "work," a sizable literature indicates that constructive relationship behaviors are not automatic in nature and require greater self-control to enact than do destructive behaviors (Finkel & Campbell, 2001; Rusbult, Yovetich, & Verette, 1996). Unfortunately, according to theories of self-regulation, self-control is a limited resource that can become depleted through use, making further acts of self-control more difficult (Baumeister, 2002). In other words, self-regulatory abilities function like a muscle that can become fatigued after exertion. Thus, spouses may find it more difficult to engage in positive relationship functioning at times when their energy and resources are being divided among several effortful acts. In this way, coping with stressful events outside the marriage may tax spouses' self-regulatory resources, leaving spouses with less energy to effectively manage their relationship issues (McCubbin & Patterson, 1983).

Supporting this idea, daily diary studies reveal that on days when spouses experience more work stress, their partners describe them as more irritable and angry in the home (Schulz, Cowan, Cowan, & Brennan, 2004; Story & Repetti, 2006). Experimental research assessing couples' interactions before and after a stress induction task indicates that the quality of marital communications dramatically declines following the stressor (Bodenmann & Shantinath, 2004). Furthermore, longitudinal studies suggest that at times when spouses are experiencing greater stress, their capacity to engage in forgiving responses to a partner's transgressions is diminished. In contrast, during times of low stress, these spouses tend to excuse any transgressions and give the partner the "benefit of the doubt" (Neff & Karney, 2004, 2009). Together, these findings underscore how conditions of stress shape and constrain spouses' experiences within the relationship, resulting in lowered marital happiness.

Is Stress Always Detrimental? Practice as the Key to Future Resilience

Although stress often serves to impede adaptive relationship processes, several theories point to the possibility that, under the right conditions, stress could help fortify marital well-being. These theories argue for a model of "practice makes perfect," as experience with small, surmountable stressors early in the relationship may help spouses develop resilience to larger, future stressors. For instance, though theories of self-regulation suggest that coping

with stress may weaken self-regulatory capabilities, making controlled, constructive responses to relationship issues more difficult, this perspective also suggests that over time, the self-regulatory muscle can be strengthened (Baumeister, Gailliot, DeWall, & Oaten, 2006). Just as regular exercise can increase physical strength, engaging in small acts of self-control can build individuals' self-regulatory resources, thereby helping individuals to maintain greater self-control in the face of future depleting circumstances (Gailliot, Plant, Butz, & Baumeister, 2007; Oaten & Cheng, 2006).

In fact, one recent study examined the effect of self-regulatory practice on acts of intimate partner violence (IPV), an impulsive behavior that often results from momentary lapses in self-regulatory control (Finkel, DeWall, Slotter, Oaten, & Foshee, 2009). In this study, dating participants engaged in a self-regulatory depleting task before completing a baseline measure of IPV tendencies toward one's partner. After this session, participants were assigned to one of three self-regulatory practice conditions: using one's nondominant hand in everyday tasks (e.g., eating, brushing teeth), regulating certain aspects of their habitual speech processes (e.g., avoiding sentences that begin with the word *I*), or a no-practice control. Participants in the experimental conditions were instructed to engage in these small acts of self-control for a 2-week period. They then returned to the lab and again completed measures of IPV tendencies after engaging in a depleting task. Participants both in the physical regulation condition and in the verbal regulation condition showed significant decreases in IPV proclivities, whereas participants in the control condition did not (Finkel et al., 2009). Even though this study did not directly examine participants' ability to cope with stress, it does indicate that practicing smaller, easily manageable acts of regulatory control can bolster the ability to refrain from destructive relationship responses when in a depleted state.

Meichenbaum's (1985) stress inoculation theory, although relying on a different metaphor, similarly argues that practice coping with manageable stressors is essential for building one's coping assets. According to this theory, just as a vaccine exposes individuals to a weakened form of a harmful disease to promote the creation of antibodies for fighting stronger forms of the disease, exposure to moderately stressful events should serve to mobilize an individual's coping resources. However, in order to benefit from the inoculation experience, individuals not only must be exposed to moderate stress but also must possess adequate resources for successfully surmounting that stress. As long as existing resources are ample enough to effectively "fight" the initial stress, these experiences can provide individuals with greater knowledge of adaptive coping strategies and increased confidence in their ability to master stressful events, thereby inoculating them against the harmful effects of later stressors.

Empirical evidence for these kinds of stress inoculation effects is growing. A study of female rape victims revealed that those who had experienced the death of a family member more than 2 years before recovered more quickly from the rape than women who did not have this prior stress experience (Burgess & Holmstrom, 1978). More recently, it was found that individuals' mental health was more resilient to negative life events if the individuals had previously faced some lifetime adversity than if they had no history of adversity (Seery et al., 2010). Further work highlights how stress may interact with individuals' coping resources to

predict future well-being. Studies of daily stress have revealed that individuals report a more positive mood on days following a stressful event than on stress-free days (Bolger, DeLongis, Kessler, & Schilling, 1989; DeLongis, Folkman, & Lazarus, 1988). This effect is particularly strong when individuals receive greater social support for the event (Caspi, Bolger, & Eckenrode, 1987). Moreover, individuals who experience stress and manage to cope well with that stress have shown increases in resources, such as improved family support and reduced family conflict, 1 year later (Holahan & Moos, 1990).

To date, however, there has been very little research examining these kinds of stress inoculation effects within marriage. One longitudinal study of newlywed couples found that experiencing stress early in the marriage predicted declines in satisfaction over time for couples exhibiting poor problem-solving behaviors but that experiencing early stress predicted more satisfying relationships 18 months later for couples exhibiting more effective problem-solving behaviors (Cohan & Bradbury, 1997). Similarly, a study of married couples experiencing economic hardship found that couples who displayed more effective problem-solving behaviors were less likely to report future marital unhappiness than couples who were less effective in resolving problems (Conger, Reuter, & Elder, 1999). These results are encouraging and suggest that the initial capacity for effective problem solving may be an important resource for developing stress resilience. Nevertheless, these studies did not examine how experiences with early stress may affect responses to later stressors. In this paper, we build on this work by arguing that entering a marriage with good initial resources is necessary but not sufficient for creating resilience to future stressors. Rather, spouses need both good initial resources and practice in using those resources in the face of manageable stressors.

Overview of the Current Studies

Both self-regulation theory and stress inoculation theory emphasize that the key to developing resilience is practice. Drawing from these perspectives, this paper presents two studies aimed at clarifying the circumstances under which spouses' marital satisfaction may be more or less resilient to the detrimental effects of stress. The first study examined whether newlyweds who begin their marriage facing moderate stress and have greater initial relationship resources for navigating that stress (i.e., more effective problem-solving behaviors) exhibit less stress spillover over the next 2-year period than do newlyweds who have good initial resources but have less practice coping with stress. The second study took a more focused approach by examining stress resilience in a sample of couples all facing the same marital stressor, namely, the transition to parenthood. This study addressed whether spouses who begin their marriage experiencing moderate stress and have good initial resources (i.e., more effective support-seeking behaviors) report better marital adjustment following this transition than do spouses who have good initial resources but lack those early stress experiences.

Study 1: Overview

Study 1 drew from a sample of 61 newly married couples. When couples were first married (i.e., Time 1), they provided informa-

tion regarding their external stress, marital satisfaction, problem-solving behaviors, and feelings of efficacy regarding their ability to handle conflicts with a partner. Couples then continued to report on their stress, satisfaction, and efficacy feelings every 6 months over the next 2-year period (i.e., Time 2 through Time 5). The use of a sample of newlyweds provided several advantages. First, newlyweds are an appropriate sample in which to examine issues of change and stability. Compared to those in more established marriages, these couples experience more dramatic changes in relationship quality and are at elevated risk of marital disruption (Bradbury, 1998). Second, couples in the early years of marriage may be more likely to be exposed to a variety of stressful life events, as a number of stressors tend to accompany the transition to marriage (e.g., relocation, starting a new job).

Analyses of these data addressed two specific questions. First, do spouses who both begin the marriage displaying more effective problem-solving behaviors and have more experience facing stress exhibit less stress spillover (i.e., greater resilience to stress) during the next 2 years of marriage? Consistent with prior work (Neff & Karney, 2004, 2007), the current study derived an index of stress spillover by examining the within-person covariance between spouses' external stress and marital satisfaction over the 2-year period that followed the initial study assessment (i.e., Time 2 through Time 5). A stronger, negative covariance would indicate greater levels of stress spillover, such that as stress increases, spouses are reporting lower levels of marital satisfaction. Alternatively, a weaker, or even positive, covariance would suggest a greater degree of separation between external stress and marital satisfaction and, thus, greater resilience. In line with prior research, it was expected that spouses would experience significant stress spillover on average. However, it was also expected that the strength of this spillover effect would vary significantly across spouses, such that some spouses would be more reactive than others to their stressful experiences. Thus, our primary goal in the study was to examine whether spouses' problem-solving behaviors and early stress experiences, both measured at Time 1 of the study, would interact to predict the strength of their future spillover. It was expected that spouses who displayed good initial problem-solving behaviors and had more experience with early stress would exhibit a greater resilience to future stress than would spouses who displayed good initial problem-solving behaviors but had less early stress experience.

Second, do spouses who begin the marriage displaying more effective problem-solving behaviors and have more experience facing stress show larger increases in their feelings of efficacy over time? As previously reviewed, stress inoculation theory argues that experience dealing with moderate-level stressors may allow individuals to gain greater confidence in their ability to deal with stressful events (Meichenbaum, 1985). This increase in confidence should encourage better coping in the face of later stressors and thereby inoculate individuals from the potentially harmful effects of those stressors. In the current study, we examined changes in spouses' efficacy expectations, or the extent to which spouses believed they were capable of resolving difficulties with their partner (Fincham, Harold, & Gano-Phillips, 2000). It was predicted that spouses who exhibited good initial problem-solving behaviors and had more early experience with stress would show greater confidence in their ability to resolve marital issues as the relationship progressed than would spouses who exhibited good

initial problem-solving behaviors but had few early stress experiences.

Method

Participants. Couples were recruited with two methods. First, advertisements were placed in community newspapers and bridal shops. Second, letters were sent to couples who had applied for marriage licenses in the surrounding community. Couples responding to either method of solicitation were screened in a telephone interview to determine whether they met the following criteria: (a) this was the first marriage for each partner and (b) the couple had been married less than 6 months. The final sample consisted of 61 couples.

On average, husbands were 25.6 (SD = 3.8) years old and had completed 15.8 (SD = 2.4) years of education. Seventy-four percent of husbands were employed full time, and 20% of husbands were full-time students. Wives on average were 23.5 (SD = 4.3) years of age and had completed 15.9 (SD = 2.3) years of education. Sixty-one percent of wives were employed full time, and 23% of wives were full-time students. Sixty-four percent of those sampled were Christian, and approximately 85% of spouses were White. The median income of couples was between $25,000 and $35,000 per year.

Procedure. Within the first 6 months of their marriage, couples were scheduled to attend a laboratory session. Prior to this session, couples were mailed a packet of questionnaires containing self-report measures of external stress, efficacy expectations, and marital satisfaction, as well as a letter instructing them to complete all questionnaires independently of one another. Couples were asked to bring these questionnaires to the lab session. During this session, couples engaged in two videotaped 10-min discussions designed to assess spouses' initial capacity for communicating and resolving conflicts well. For each discussion, one spouse was asked to identify an area of difficulty in the marriage and to discuss the problem with the partner, with the goal of working toward some resolution on the issue. Spouses were encouraged not to choose the same issues. Couples were paid $70 for participating in this part of the study.

Following this initial session, couples were contacted to complete four additional follow-up assessments at 6-month intervals over the next 2 years. At each assessment, couples were mailed questionnaires similar to those described earlier. Upon returning the questionnaires via mail, couples were paid $50. At Time 5, the final wave of data collection, 56 couples were still married, five couples (8.2%) had divorced, and three couples (4.9%) had dropped out of the study due to time restrictions. Of the 56 couples who were still married and participating in the study, 43 couples (76.8%) returned completed packets at Time 5. Analyses were conducted to determine whether spouses who completed the final wave of data collection differed from spouses who did not on any of the variables of interest in the study. Results revealed that wives who completed the final wave of data collection were significantly more satisfied with the marriage at Time 1 of the study than those who did not, $t(59)$ = −2.123, p = .04. No differences emerged for husbands. However, as data were examined through growth curve modeling, participants who did not provide all five waves of data (i.e., participants who had missing data or who divorced during the study) could be included in all analyses. Thus, results reported are based on data from all 61 couples. Omitting couples who divorced did not change any of the results reported.

Materials.

Global marital satisfaction. Many commonly used measures of marital satisfaction (e.g., the Marital Adjustment Test; Locke & Wallace, 1959) contain items that assess spouses' evaluations of specific areas of potential conflict as well as items assessing spouses' appraisals of the relationship as a whole. To ensure these two ideas were not confounded in the current study, we measured satisfaction with an instrument that obtains global evaluations of the relationship exclusively. Spouses completed a 15-item version of the Semantic Differential (Osgood, Suci, & Tannenbaum, 1957), which asked spouses to rate their current feelings about the marriage on 7-point scales between two opposite adjectives (e.g., *Satisfied–Dissatisfied, Unpleasant–Pleasant*). Scores can range from 15 to 105, with higher scores indicating greater satisfaction. Satisfaction was assessed at all five waves of data collection, and the internal consistency of the measure was high across all waves for husbands (coefficient αs = .93–.97) and for wives (coefficient αs = .93–.98).

Stressful life circumstances. To assess spouses' stressful experiences at all five waves of data collection, we asked spouses to complete a measure developed by Hammen et al. (1987). Spouses were asked to reflect on the quality of the following 12 life domains over the prior 6 months: the marital relationship, parenthood, relationships with family, relationships with in-laws, relationships with friends, experiences at school, experiences at work, unemployment, finances, living conditions, own health, and spouse's health. For each domain, spouses were instructed to rate their experiences within that domain over the prior 6 months on a 9-point scale (1 = *exceptionally positive circumstances* to 9 = *exceptionally stressful circumstances*). The questionnaire was structured such that spouses were asked about their marriage first, then the other domains. This ordering of questions was chosen in order to encourage spouses to separate their marital stress from their stress in the other domains (e.g., Strack, Martin, & Schwarz, 1988). Of the 12 domains included on the original measure, only those domains representative of stress occurring outside the marriage were selected to be included in the final composite score (i.e., ratings of stress in the marital relationship were omitted from analyses). As not all domains applied to all spouses, a mean score across the remaining 11 nonmarital domains was created for each spouse. Thus, scores on the measure can range from 1 to 9, with higher scores indicating greater nonmarital stress.

Efficacy expectations. Spouses completed the Relationship Efficacy Measure (Fincham et al., 2000) to assess the extent to which spouses were confident in their ability to overcome difficulties with their partner. This measure asked spouses to rate their agreement with seven statements related to their perceptions of helplessness and control within the relationship (e.g., "I have little control over the conflicts that occur between my partner and I" and "I am able to do the things needed to settle our conflicts") on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores can range from 7 to 35, with higher scores indicating greater feelings of confidence and efficacy. Spouses completed this measure at the first two time points of the study only (e.g., when couples were first married and again 6 months later). Internal consistency was high for husbands (coefficient αs = .76 and .71) and for wives (coefficient αs = .80 and .81) at each assessment.

Behavioral observation coding. A modified version of the Verbal Tactics Coding Scheme (Sillars, Coletti, Parry, & Rogers, 1982) was used to assess spouses' initial problem-solving behaviors (i.e., initial relationship resources). Each 10-min interaction was divided into speaking turns, and each speaking turn was then coded. With this version of the coding scheme, each speaking turn may receive one of four codes: positive, negative, neutral, or off-task. Positive codes are given to behaviors that help define the problem, suggest a plan of coping with the issue, convey understanding and support to the partner, or provide encouragement and affection to the partner. Negative codes are assigned to behaviors that directly criticize, fault, or reject the partner, as well as to behaviors that indirectly criticize the partner through hostile sarcasm, avoiding responsibility, or hostile questioning. Neutral codes are given to behaviors relevant to the problem but factual in nature. Finally, off-task is given to all behaviors not relevant to the issue.

Four research assistants were trained to code the interactions independently using the coding scheme. Interrater reliability, which was assessed by having randomly selected pairs of observers code a randomly selected 18% of the interactions, was generally quite high (for husbands, intraclass correlation coefficients = .69 for positive, .88 for negative, .90 for neutral, and .64 for off-task; for wives, intraclass correlation coefficients = .62 for positive, .88 for negative, .90 for neutral, and .85 for off-task). The codes in subsequent analyses were analyzed by dividing the number of times each code was assigned to each spouse by the total number of speaking turns of that spouse. Thus, each code was analyzed as a proportion of the total speaking turns to control for variation across spouses in the number of speaking turns.

An index of the overall positivity of husbands' and wives' behavior was calculated for each interaction by computing the difference between the total proportion of positive behavior and the total proportion of negative behavior. Each spouses' behavior from the two interactions then were averaged to create a single index of problem-solving behaviors across the interactions. Higher scores indicate more constructive problem-solving behaviors.

Individual difference variables. Spouses also were asked to complete two individual difference measures in order to control for personality factors that may influence the manner in which spouses evaluate their stress or their marriage. Neuroticism, a key indicator of negative affectivity, was assessed with the Neuroticism scale of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1978). This 23-item measure asks spouses to answer yes or no questions about their negative affectivity. Internal consistency was high for husbands and for wives (coefficient αs = .86 and .84, respectively). Composite scores could range from 0 to 23, with higher scores indicating higher neuroticism. The Rosenberg Self-Esteem Questionnaire was used (Rosenberg, 1965) to assess spouses' feelings of self-worth. Items were rated on a 1 to 4 scale (1 = *strongly disagree*; 4 = *strongly agree*). The internal consistency of the 10 items was adequate for husbands and for wives (coefficient αs = .91 and .78, respectively). Composite scores could range from 10 to 40, with higher scores indicating higher feelings of self-esteem.

Data analysis. Examining stress spillover/resilience effects, as well as potential moderators of these effects, required both within-person and between-person analyses. A within-person approach allowed us to examine whether changes in a spouse's stress were associated with changes in the spouse's marital satisfaction, controlling for idiosyncratic tendencies of spouses to view their relationship and their stress more or less favorably. The between-persons approach allowed us to evaluate whether the degree of stress spillover/resilience exhibited was associated with spouses' early stress experiences and problem-solving behaviors. To address both the within-person and between-persons hypotheses, we examined data using hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992). This approach was adopted for several reasons. First, in contrast to other approaches to analyzing multilevel models (e.g., structural equation modeling), HLM provides reliable estimates of within-subject parameters even when sample sizes are relatively small. Second, HLM provides maximally efficient estimates of these parameters by weighting individual estimates according to empirical Bayes theory. When the within-subject parameter for an individual can be estimated precisely, the final estimate relies heavily on the individual data. When the parameter cannot be estimated precisely (e.g., because of missing data), the final estimate relies more heavily on the mean of the sample. Because the most precise estimates therefore contribute more to the final estimated variance of the sample, variances estimated in this way tend to be more conservative than those obtained through traditional ordinary least squares methods. To account for statistical interdependence within couples, we followed procedures described by Laurenceau and Bolger (2005), which are based on recommendations by Raudenbush, Brennan, and Barnett (1995). In particular, husbands' and wives' effects were estimated simultaneously for all analyses, and dummy variables were used to nest husband and wife data within each couple.

Results

Descriptive statistics. Table 1 presents descriptive statistics for all measures. Not surprisingly, these newlywed couples generally maintained highly positive views of the marriage, felt confident in their ability to overcome difficulties with a partner, and were observed to exhibit relatively positive problem-solving behaviors during the conflict interactions. Examination of couples' early stress experiences revealed that upon entering marriage, spouses reported low-to-moderate levels of external stress. In fact, the range of stress scores varied from extremely low to just below the midpoint of the scale. Thus, the stress levels reported in this sample are appropriate for examining whether facing moderate stress early in a marriage may bolster resilience to future stressors. To examine for possible gender differences on any of the variables of interest, we conducted paired sample t tests. Wives were initially more satisfied with the marriage than were husbands, $t(60) = -2.1$, $p = .04$, 95% CI [-5.89, -0.18], though this difference disappeared as the marriage progressed. In general, wives also reported experiencing more external stress than did their husbands. The gender difference was significant at Times 1 and 2, $t(60) = -2.5$, $p = .02$, 95% CI [-0.86, -0.10] and $t(50) = -2.6$, $p = .01$, 95% CI [-0.96, -0.12], respectively, and was marginally significant at Times 3 and 4, $t(44) = -1.8$, $p = .08$, 95% CI [-0.74, 0.06] and $t(42) = -1.8$, $p = .08$, 95% CI [-0.77, 0.05], respectively.

Examination of the correlations between spouses' Time 1 relationship variables and early external stress revealed spouses' stress was significantly associated with marital satisfaction, such that

Table 1
Means and Standard Deviations (Study 1)

| Scale | Time 1 | | | | Time 2 | | | | Time 3 | | | | Time 4 | | | | Time 5 | | | |
| | Husband | | Wife | | Husband | | Wife | | Husband | | Wife | | Husband | | Wife | | Husband | | Wife | |
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Marital satisfaction	93.5	11.5	96.6	9.0	92.3	9.9	90.9	12.8	89.7	11.6	93.7	10.4	93.1	9.8	92.5	11.7	87.2	14.8	91.9	13.7
External stress	3.5	1.3	4.0	1.4	3.3	1.3	3.9	1.1	3.5	1.2	3.7	1.1	3.3	1.3	3.7	1.3	3.9	1.4	3.8	1.2
Efficacy feelings	27.4	4.6	27.3	4.6	27.8	4.6	27.2	4.9				(Not assessed at Times 3, 4, and 5)								
Problem-solving behaviors	0.29	0.19	0.39	0.21					(Not assessed at Times 2–5)											

Note. Marital satisfaction scores could range from 15 to 105. External stress scores could range from 1 to 9. Efficacy score could range from 7 to 35. Problem-solving scores could range from 0 to 1. For all measures other than external stress, higher values indicate more positive appraisals and behaviors.

spouses who reported having more stressful lives evaluated their marriages in a more negative light ($r = -.45$, $p < .01$, for husbands; $r = -.44$, $p < .001$, for wives). Stress was also significantly negatively associated with efficacy expectations, such that spouses reporting more stressful lives reported greater feelings of helplessness about overcoming difficulties with their partner ($r = -.30$, $p < .01$, for husbands; $r = -.43$, $p < .01$, for wives). Finally, stress was significantly negatively associated with observed problem-solving behaviors for wives only ($r = -.36$, $p < .01$), such that wives experiencing greater stress also were rated by independent observers as displaying more negative communication behaviors during the interactions. These initial findings are consistent with the idea that stress can be associated with lowered relationship functioning; nevertheless, they fail to speak to whether these early stressful experiences may improve couples' resilience to later stress. Observed problem-solving behaviors were not associated with Time 1 marital satisfaction for husbands ($r = .13$, $p > .05$) or for wives ($r = -.03$, $p > .05$). This finding is consistent with prior studies of newlyweds, which indicate that associations between observed behaviors and newlywed satisfaction tend to be nonsignificant or relatively weak. Instead, these behaviors often are more strongly associated with changes in satisfaction over time (e.g., Johnson et al., 2005).

Turning to within-couple correlations, husbands' and wives' marital satisfaction were significantly correlated across all five waves of data collection (range = .30–.52). Husbands' and wives' levels of external stress also were positively significantly associated at all five waves of data collection (range = .23–.46). However, as these correlations were of modest size, this suggests that spouses were experiencing many unique stressors that were not shared with their partner. Observed problem-solving behaviors were positively correlated between spouses, such that spouses displaying good behaviors during the interactions tended to have partners who also behaved well ($r = .69$, $p < .01$). Finally, feelings of efficacy were not significantly associated within couples ($r = .10$, $p = .46$).

Does experience with early stress predict later stress resilience? According to theories of stress inoculation, individuals who are exposed to manageable stressors and have initial resources available to help them effectively combat those stressors may become more resilient to future stress (Meichenbaum, 1985). On the basis of this idea, we predicted that spouses who face moderate stress early in the marriage and have greater initial resources for

navigating stress (i.e., more effective problem-solving behaviors) would be less vulnerable to future stress spillover effects than would spouses who have good initial resources but have less practice coping with stressful experiences. We examined this hypothesis by first computing an index of future stress spillover/resilience. The within-person association between changes in external stress and changes in marital satisfaction over the 2-year period that followed the initial study assessment (i.e., Times 2 through 5) was examined with the following HLM equation,

$$\text{global marital satisfaction} = \beta_0(\text{wives}) + \beta_1(\text{husbands})$$
$$+ \beta_2(\text{wives' time})$$
$$+ \beta_3(\text{husbands' time})$$
$$+ \beta_4(\text{wives' stress})$$
$$+ \beta_5(\text{husbands' stress})$$
$$+ \text{error}, \tag{1a}$$

where time and stress were centered within persons for each spouse. Centering stress in this way allowed for the examination of whether being high or low in stress relative to the individual's own mean rating was associated with changes in global marital satisfaction. In other words, this centering strategy controlled for individual differences in the amount of stress experienced. In this equation, β_0 and β_1 represent an estimate of the average global marital satisfaction over the 2-year period for a given spouse. β_2 and β_3 capture the slope of a spouse's satisfaction over time. β_4 and β_5 capture the within-person association between a spouse's global marital satisfaction and level of stress, controlling for the spouse's average marital satisfaction and any linear changes in satisfaction over time. These last two parameters, then, represent an index of stress spillover/resilience. A larger, negative value would indicate greater levels of stress spillover, such that at times when spouses are experiencing greater stress than normal, they are reporting decreases in marital satisfaction. A smaller, negative, or even a positive value would indicate greater stress resilience, as these spouses would be maintaining a marital satisfaction that is less affected by fluctuating stressful conditions.

Table 2 presents the average beta terms for husbands and wives, as well as the effect size for all parameters, with effect size r equal to $\sqrt{(t^2)/(t^2+df)}$ (Snijders & Bosker, 1999). Results revealed that, on average, spouses were experiencing significant levels of stress spillover. However, our primary goal in the analyses was to predict

Table 2
Stress Spillover/Resilience Over the Early Years of Marriage (Study 1)

| | | | | | 95% CI | |
Variable	*B*	*SE*	*t*	*r*	LL	UL
Husbands (*df* = 54)						
Intercept	91.62	2.33	39.30***	.98		
Slope	−1.45	0.69	−2.10*	.27	−2.83	−0.07
Stress spillover	−2.10	0.63	−3.31**	.41	−3.36	−0.84
Wives (*df* = 54)						
Intercept	90.05	2.66	33.80***	.98		
Slope	−0.36	0.53	−0.68	.09	−1.42	0.70
Stress spillover	−1.91	0.87	−2.21*	.28	−3.65	−0.17

Note. *SE* = standard error; *r* = effect size; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *df* = degrees of freedom.
* $p < .05.$ ** $p < .01.$ *** $p < .001.$

between-persons differences in the strength of that stress spillover effect. To do this, we entered spouses' early stress experiences (assessed at Time 1), observed problem-solving behaviors (assessed at Time 1), and their interaction at the between-subjects level of the HLM analysis, according to the following equations,

$$\beta_4(\text{wives' stress spill/resilience}) = \gamma_{40}$$
$$+ \gamma_{41}(\text{wives' early stress})$$
$$+ \gamma_{42}(\text{wives' problem-solving behaviors})$$
$$+ \gamma_{43}(\text{wives' early stress}$$
$$\times \text{wives' problem-solving behaviors}) + \text{error}; \quad (1b)$$

$$\beta_5(\text{husbands' stress spill/resilience}) = \gamma_{50}$$
$$+ \gamma_{51}(\text{husbands' early stress})$$
$$+ \gamma_{52}(\text{husbands' problem-solving behaviors})$$
$$+ \gamma_{53}(\text{husbands' early stress}$$
$$\times \text{husbands' problem-solving behaviors}) + \text{error}; \quad (1c)$$

with early stress and problem-solving behaviors centered around the sample mean. Thus, Equations 1a, 1b, and 1c were estimated in a single model. As shown in Table 3, a main effect of early stress experiences on future spillover/resilience emerged for husbands,

such that husbands who experienced more stress early in the marriage exhibited greater stress spillover as the marriage progressed. The interaction term was not significant. For wives, however, the expected interaction of early stress experiences and observed problem-solving behaviors did predict future stress resilience. To determine whether this association was significantly stronger for wives than for husbands, we specified a model in which the size of the association was constrained to be equal for husbands and for wives. This test of the gender difference achieved marginal significance, $\chi^2(1) = 3.09$, $p = .07$.

We examined the interaction for wives more closely using procedures outlined by Aiken and West (1991) for two continuous variables, with comparisons made at 1 standard deviation (*SD*) from the mean. Given that the mean of wives' early stress fell below the midpoint of the scale (see Table 1), 1 *SD* above this mean captures values representative of moderate stress. As shown in Figure 1, plotting the interaction revealed a pattern of results consistent with hypotheses. Simple slope analyses confirmed that among wives displaying more constructive problem-solving behaviors, wives who reported experiencing greater levels of stress early in the marriage exhibited significantly more stress resilience over the following 2-year period than did wives who reported less

Table 3
Observed Problem-Solving Behaviors, Early Stress, and Their Interaction as Moderators of Future Stress Spillover/Resilience (Study 1)

| | | | | | 95% CI | |
Variable	γ	*SE*	*t*	*r*	LL	UL
Husbands (*df* = 48)						
T1 early stress	−1.22	0.24	−5.18***	.59	−1.70	−0.74
T1 problem solving	−0.01	0.33	−0.01	.01	−0.67	0.65
Wives (*df* = 48)						
T1 early stress	0.27	0.34	0.81	.11	−0.41	0.95
T1 problem solving	0.18	0.38	0.46	.06	−0.58	0.94
Early Stress × Problem Solving interaction						
Husbands	0.08	0.25	0.33	.05	−0.42	0.58
Wives	0.46	0.20	2.29*	.31	0.06	0.86

Note. *SE* = standard error; *r* = effect size; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *df* = degrees of freedom; T1 = Time 1.
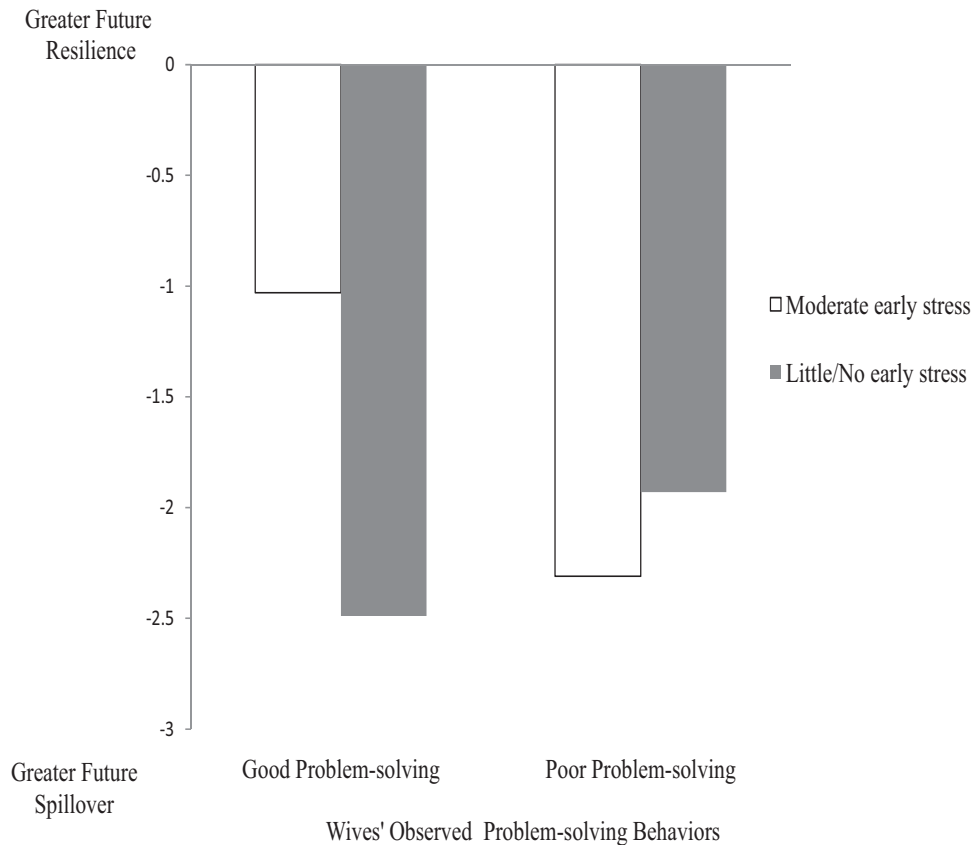* $p < .05.$ *** $p < .001.$

Figure 1. The interaction of early stress and observed problem-solving behaviors predicting future stress resilience for wives.

early stress, $\beta = .88$, $SE = .41$, $t(53) = 2.12$, $p < .05$, 95% CI [0.06, 1.70]. Among wives displaying poor problem-solving behaviors, experiences with early stress were not associated with future resilience, $\beta = -.49$, $SE = .56$, $t(53) = -0.86$, $p > .05$, 95% CI [−1.62, 0.64]. Thus, marital well-being was more resilient when wives both had good initial resources and had more practice using those resources under stressful conditions.

Further analyses confirmed these results held when controlling for personality factors that may influence wives' reporting of their stress levels. On average, wives who were higher in neuroticism also exhibited greater levels of stress spillover, $\gamma = -0.13$, $SE = 0.05$, $t(49) = -2.52$, $p < .05$, 95% CI [−0.23, −0.03]. Wives' self-esteem, however, was not associated with future spillover, $\gamma = 0.08$, $SE = 0.06$, $t(49) = 1.44$, $p > .05$, 95% CI [−0.04, 0.20]. Including these control variables did not affect the reported interaction.

Does experience with early stress predict increases in efficacy over time? It has been argued that exposure to moderate stressors can stimulate positive changes, such as increasing confidence in one's ability to effectively handle stress, that make the successful adaptation to future stressors more likely (Holahan & Moos, 1990; Updegraff & Taylor, 2000). Thus, it was predicted that spouses who face moderate stress early in the marriage and have greater initial resources for effectively combating those early stressors would report greater increases in feelings of efficacy as

the relationship progressed than would spouses who have good initial resources but less practice coping with stressful experiences.

To examine whether observed relationship behaviors interacted with levels of early stress to predict spouses' future (i.e., Time 2) efficacy feelings, we conducted separate hierarchical regressions for each spouse. Two control variables (initial global marital satisfaction and initial level of relationship efficacy) were entered on the first step of the regression equation, with spouses' problem-solving behaviors (centered) and early experiences with stress (centered) included as predictor variables on the second step. The third step added the interaction of problem-solving behaviors and early stress to the equation. As shown in Table 4, results for husbands revealed a main effect of problem-solving behaviors on future efficacy feelings, such that husbands who displayed more constructive behaviors during their problem discussions reported greater levels of efficacy. Additionally, there was a main effect of early stress, such that husbands who experienced more stress at the beginning of the marriage reported lower levels of efficacy as the relationship progressed. The interaction between early stress and problem-solving behaviors was not significant.

With regard to results for wives, no main effects of early stress or problem-solving behaviors were found, though the expected interaction effect was significant. This interaction was further examined with procedures outlined by Aiken and West (1991) for two continuous variables, with comparisons made at 1 *SD* from the

Table 4

Observed Problem-Solving Behaviors, Early Stress, and Their Interaction as Predictors of Time 2 Feelings of Efficacy (Study 1)

					95% CI	
Variable	B	SE	t	Standardized β	LL	UL
Husbands (df = 45)						
Initial marital satisfaction	1.09	0.96	1.13	.19	−0.85	3.02
Initial efficacy	0.40	0.66	0.61	.10	−0.93	1.74
Early stress	−1.81	0.85	−2.14*	−.34	−3.52	−0.10
Observed problem solving	1.46	0.54	2.74**	.33	0.37	2.55
Wives (df = 46)						
Initial marital satisfaction	0.35	0.78	0.46	.06	−1.21	1.91
Initial efficacy	2.82	0.60	4.69***	.60	1.61	4.04
Early stress	−0.06	0.73	−0.08	−.01	−1.52	1.41
Observed problem solving	0.63	0.64	0.97	.13	−0.68	1.93
Stress × Observed Problem Solving interaction						
Husbands	0.27	0.58	0.47	.06	−0.90	1.44
Wives	1.33	0.44	3.05**	.35	0.45	2.22

Note. SE = standard error; CI = confidence interval; LL = lower limit; UL = upper limit; df = degrees of freedom.
* $p < .05$. ** $p < .01$. *** $p < .001$.

mean. As shown in Figure 2, the overall pattern of results was consistent with hypotheses. Simple slope analyses confirmed that among wives exhibiting more constructive problem-solving behaviors, wives who experienced greater levels of stress early in the marriage reported marginally higher efficacy expectations than did wives who reported fewer early stress experiences, $B = 1.40$, $SE = 0.74$, $\beta = .27$, $t(46) = 1.89$, $p = .07$, 95% CI [−0.10, 2.89]. Among wives exhibiting poor problem-solving behaviors, experi-
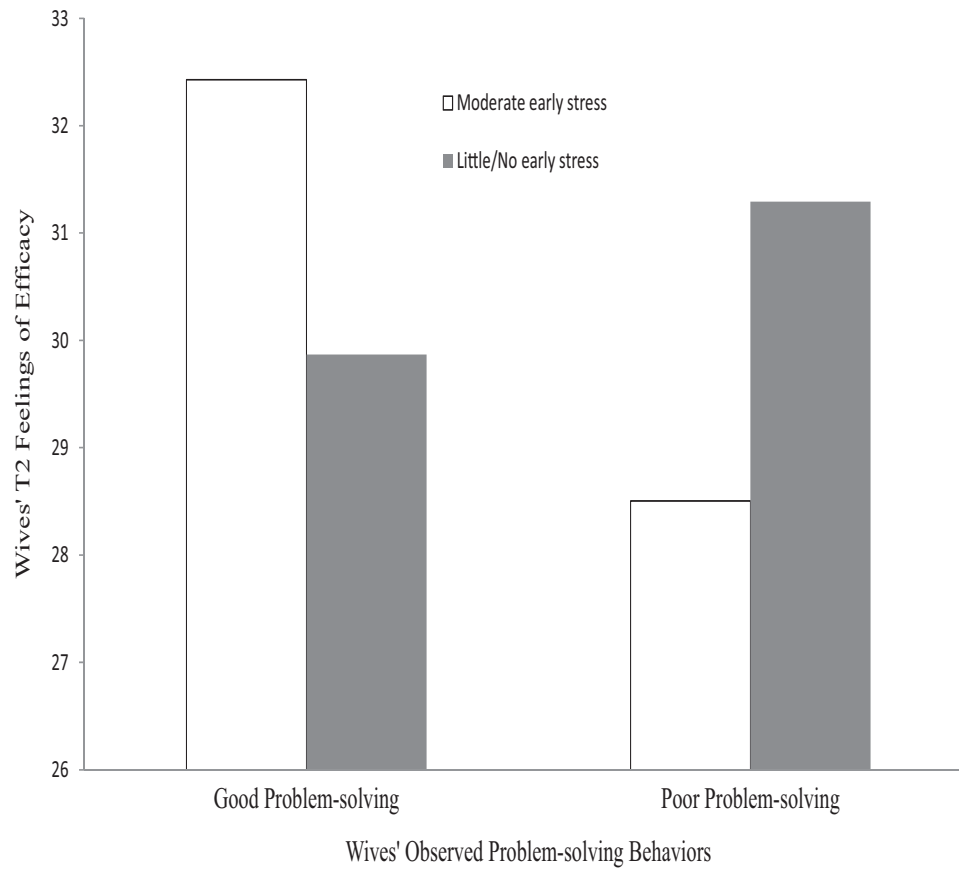

Figure 2. The interaction of early stress and observed problem-solving behaviors predicting Time 2 efficacy expectations for wives.

ences with early stress were not significantly associated with future efficacy expectations, $B = -1.28$, $SE = 0.94$, $\beta = -.25$, $t(46) = -1.36$, $p = .18$, 95% CI $[-3.19, 0.63]$. Thus, wives' confidence in their ability to surmount difficulties increased most when wives both had good initial relationship resources and had more practice using those resources under stressful conditions.

Again, further analyses were conducted to ensure this pattern of results held when controlling for wives' neuroticism and self-esteem. Neuroticism did not predict future feelings of efficacy, $B = -0.91$, $SE = 0.66$, $\beta = -.18$, $t(46) = -1.37$, $p = .18$, 95% CI $[-2.25, 0.43]$, nor did self-esteem, $B = 0.99$, $SE = 0.60$, $\beta = .19$, $t(46) = 1.65$, $p = .11$, 95% CI $[-0.22, 2.19]$. Including these control variables did not affect the reported interaction.

Finally, analyses were conducted to examine whether wives' feelings of efficacy may mediate the relationship between the Early Stress × Problem-Solving Behaviors interaction and future spillover/resilience. First, to examine whether efficacy alone predicts future resilience, wives' Time 2 efficacy reports were entered into the between-subjects level of the previously reported stress spillover/resilience equation (i.e., Equation 1a) in accordance with the following equation:

$$\beta_4(\text{wives' stress spill/resilience}) = \gamma_{40}$$
$$+ \gamma_{41}(\text{wives' Time 2 efficacy}) + \text{error}. \quad (2)$$

Results indicated that wives reporting higher efficacy expectations also exhibited greater future resilience, $\gamma = 0.15$, $SE = 0.05$, $t(44) = 2.91$, $p < .01$, 95% CI $[0.05, 0.25]$. Next, the between-subjects level equation previously reported (i.e., Equation 1b) was run including Time 2 efficacy as an additional predictor of future spillover/resilience. When efficacy was included in the model, the interaction between early stress and observed problem-solving behaviors was no longer significant, $\gamma = 0.18$, $SE = 0.21$, $t(41) = 0.85$, $p = .40$, 95% CI $[-0.24, 0.60]$. Efficacy expectations, however, remained a significant predictor of resilience, $\gamma = 0.14$, $SE = 0.05$, $t(41) = 2.74$, $p = .01$, 95% CI $[0.04, 0.24]$, and results of the Sobel test were significant (Sobel's $z = 2.04$, $p = .04$). These results lend credence to the notion that confidence in one's coping abilities may represent an important mechanism underlying stress resilience effects.

Discussion of Study 1

Consistent with prior research linking stress to marital quality, current results indicated that, on average, spouses were experiencing significant levels of stress spillover during the early years of marriage. Examination of the within-person association between changes in stress and changes in marital satisfaction over the 2-year period that followed the initial study assessment (e.g., Time 2 through Time 5) revealed that at times when spouses were experiencing greater than usual levels of stress, they also reported lowered marital happiness. Nevertheless, spouses varied in the strength of that spillover effect, suggesting that some spouses were exhibiting a greater resilience to their stressful circumstances. For wives but not for husbands, this resilience was predicted by the interaction of their observed problem-solving behaviors and their early experiences with stress, both measured at Time 1 of the study. As predicted, wives who displayed more effective problem-solving behaviors and who had more experiences with stress early

in the marriage exhibited fewer future stress spillover effects than did wives who displayed effective problem-solving behaviors but who had less practice using those behaviors under stressful conditions. Thus, as suggested by theories of stress inoculation, the experience of coping with moderate stressors seemed to enhance wives' resilience to future stressors. Further results revealed that among wives displaying more effective problem-solving behaviors, those with more early stress experiences exhibited the largest increases in feelings of efficacy as the relationship progressed. In addition, efficacy expectations were found to mediate the link between the Early Stress × Problem-Solving Behaviors interaction and future resilience. These findings support the idea that one potential mechanism underlying the development of resilience involves the confidence to successfully manage conflicts and difficulties. As long as spouses have adequate resources for addressing moderate stressors, exposure to that stress may serve to cultivate a belief that one is capable of effectively adapting to future stressors and thereby enhance resilience.

It is interesting that, contrary to predictions, significant results were found for wives but not for husbands. One possible explanation for this unexpected pattern of results may involve differences in the amount and types of stressors that husbands and wives were experiencing. Wives in the current study reported experiencing greater levels of stress over the 3-year period than did husbands. Additionally, a closer examination of the amount of stress spouses were experiencing within each domain revealed that wives reported work and school as their greatest sources of strain. Given that work stress is a particularly important predictor of family difficulties (Higgins, Duxbury, & Irving, 1992) and that women often feel more conflict between their roles at work and their roles at home than do men (Moen & Yu, 2000), the finding that women were experiencing more stress in these domains could have provided more opportunities for stress spillover to occur and, as a result, more potential for detecting stress resilience effects.

To our knowledge, the results from Study 1 provide the first empirical evidence of stress resilience in a marital context. The fact that the predicted pattern of results emerged for wives even in this relatively small sample serves to bolster confidence in the findings. Nonetheless, further work is needed to ensure this pattern is replicable across other samples. Moreover, this study did not account for differences in the nature or severity of the future stressors faced over the course of marriage. In other words, it is possible that spouses experienced only few and mild stressors during the early years of marriage, making this study a conservative test of hypotheses. Thus, we conducted a second study to examine whether evidence of stress resilience could be found within a new sample of couples tackling a uniform stressor often shown to negatively impact marital quality, namely, the transition to parenthood.

Study 2 Overview: Resilience to the Transition to Parenthood

Though the birth of a child is generally considered to be a joyous event, the transition to parenthood has been shown to be one of the most stressful periods in some couples' marriages (Heinicke, 1995). Research assessing couples' pre- and postbirth stress levels has revealed that couples report experiencing greater

levels of personal and marital stress following the birth of their child (Miller & Sollie, 1980). As predicted by theories of stress spillover, these increases in stress often hasten declines in marital quality (Simpson & Rholes, 2002). One longitudinal study examining the transition to parenthood in newly married couples found that although all couples reported drops in their joint leisure activities over time, these declines were sharper for those couples who became parents (MacDermid, Huston, & McHale, 1990). In other words, the stress of parenthood seemed to impair activities that help to foster intimacy in the relationship. Another recent longitudinal study of newlywed couples found that the transition to parenthood accounted for decreases in general marital satisfaction over and above the normative declines in satisfaction experienced by matched control couples who were voluntarily childless (Lawrence, Rothman, Cobb, Rothman, & Bradbury, 2008).

Yet, the depiction of parenthood as a harbinger for marital troubles is not without some controversy. Other studies have found that love and marital well-being in the early years of marriage are comparable for parents and nonparents (Cast, 2004). In fact, some work indicates that it is only those couples who have not effectively coordinated their roles for coping with the stress of parenthood that are at particular risk for experiencing diminished marital satisfaction (MacDermid et al., 1990). Thus, to understand the factors that may better prepare couples for the stress of parenthood and make the marriage more resilient to this transition, we addressed in Study 2 whether spouses who are exposed to moderate stress early in the marriage and who have good initial relationship resources to aid in coping with that stress (i.e., better support-seeking behaviors) may exhibit greater marital adjustment following the transition to parenthood than do spouses who have good initial resources but few early stress experiences.

Method

Participants. Couples were recruited for this study with two methods. First, advertisements were placed in community newspapers and bridal shops. Second, letters were sent to couples who had applied for marriage licenses in the community surrounding a large, public university in the South. Couples responding to either method of solicitation were screened in a telephone interview to determine whether they met the following criteria: (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, and (c) neither partner had children (to allow us to study the transition to parenthood). The sample consisted of 169 couples.

These 169 couples were contacted every 6 months over a 4-year period as part of a larger study of marriage. However, the current study examined data only from those couples who (a) experienced the transition to parenthood at some point during the 4-year period and (b) provided data regarding their marital well-being at the assessment 6 months after the birth of their child. Fifty-six couples gave birth to a child during the course of the study. However, six of these couples had their child at the final wave of data collection and therefore could not provide information on their marital adjustment following the transition to parenthood. Thus, the final sample consisted of 50 couples.

In this sample of 50 couples, husbands on average were 27.3 ($SD = 4.1$) years of age and had received 16.5 ($SD = 2.4$) years of education. Sixty-eight percent of husbands were employed full

time, and 22% of husbands were full-time students. Wives on average were 24.7 ($SD = 3.6$) years of age and had received 16.1 ($SD = 2.0$) years of education. Forty-two percent of wives were employed full time, and 26% of wives were full-time students. Sixty-four percent of husbands and 70% of wives were Christian, and 74% of husbands and 92% of wives were White.

Analyses were conducted to determine whether spouses who did or did not experience the transition to parenthood differed in their initial marital satisfaction, early stress experiences, or initial support behaviors, all of which were assessed at Time 1 of the study. Only one significant difference emerged. Wives who had a child during the study reported higher levels of initial marital satisfaction than wives who did not, $t(167) = -2.5$, $p = .01$.

Procedure. As in Study 1, couples were scheduled to attend a laboratory session within the first 6 months of their marriages. Prior to this session, couples were mailed a packet of questionnaires containing self-report measures of external stress and marital satisfaction, as well as a letter instructing them to complete all questionnaires independently of one another. Couples were asked to bring these questionnaires to the lab session. During this session, couples engaged in a social support interaction task. In particular, each couple engaged in two videotaped 10-min discussions designed to assess how effectively spouses can talk about their personal challenges and solicit social support from a partner. In the first discussion, one spouse was randomly selected to identify a personal problem or something about themselves they would like to change. Spouses were specifically instructed to choose a topic that was strictly a personal issue and not a marital issue. Spouses were asked to discuss this topic with their partner for 10 min, during which time the partner was told to respond in whatever way he or she felt was appropriate. After the first discussion, the roles were reversed such that the remaining spouse was asked to choose the topic for the next discussion. Spouses were encouraged not to choose the same issues. Thus, each spouse had the opportunity to play the role of the support seeker. Couples were paid $50 for participating in this part of the study. Couples were then contacted every 6 months over the next 4 years to determine whether they had experienced the transition to parenthood as well as the effects of that transition on their marital well-being.

Materials.

Global marital satisfaction. As in Study 1, initial marital satisfaction was measured with the Semantic Differential (Osgood et al., 1957). The internal consistency of the measure was high for husbands (coefficient $\alpha = .95$) and for wives (coefficient $\alpha = .94$).

Marital resilience following TTP. To assess future resilience, spouses were asked to report on how the transition to parenthood impacted their marriage approximately 6 months following the birth of their first child. Spouses were presented with a sentence stem ("In the months after our first child was born, our marriage . . .") and were asked to complete this item on a 9-point scale (1 = *got a lot worse* to 9 = *improved a lot*).

Stressful life circumstances. To assess spouses' early stress experiences at the beginning of the marriage, spouses completed a version of the Stressful Life Events checklist (Sarason, Johnson, & Siegel, 1978) designed to assess life events in the previous 6 months. Sixty-five negative, stressful events were selected, with an emphasis on concrete events likely to occur in a young, married population. Events were grouped to represent nine life domains:

marriage (e.g., separation from spouse due to work or travel), work (e.g., passed over for promotion at work), school (e.g., school application rejected), family and friends (e.g., death of a friend or family member), finances (e.g., encountered unexpected expenses), health (e.g., had minor physical illness), personal events (e.g., involved in an accident), living conditions (e.g., difficulties with neighbors), and legal (e.g., involved in a lawsuit or legal action). For each event, spouses simply indicated whether the event had occurred (1 = yes, 0 = no). To be included in the final composite score, however, the event could not represent a likely consequence of marital satisfaction or marital distress. Fourteen items were excluded from the final score for this reason (e.g., sexual difficulties). Thus, the measure taps only those stressors external to (i.e., unlikely to be caused by) the marriage. The final stress score, which could range from 0 to 51, was computed by adding together the number of events the spouse reported had occurred.

Behavioral observation coding. The Social Support Interaction Coding System (Bradbury & Pasch, 1992) was used to assess communication behaviors when spouses sought support for important personal issues (i.e., initial relationship resources). Each 10-min interaction was divided into speaking turns, and the speaking turns for the support seeker were then coded. Using this coding scheme, each speaking turn may receive one of four codes: positive, negative, neutral, or off-task. Positive codes are assigned to behaviors that move the conversation forward by offering a specific analysis of the problem, expressing one's feelings toward the problem, developing a plan for solving the issue, or asking for help or advice managing the problem. Negative codes are assigned when spouses aggressively demand help for the problem, criticize or fault the partner, whine or complain about the issue, or express uncontrollable helplessness in fixing the problem. Neutral codes are given to behaviors relevant to the problem but factual in nature. Finally, off-task is given to all behaviors not relevant to the issue.

Five research assistants were trained to independently code the interactions. Interrater reliability, which was assessed by having randomly selected pairs of observers code a randomly selected 25% of the interactions, was generally quite high (for husbands, intraclass correlation coefficients = .82 for positive, .87 for negative, .92 for neutral, and .99 for off-task; for wives, intraclass correlation coefficients = .70 for positive, .90 for negative, .73 for neutral, and .92 for off-task). To analyze the codes in subsequent analyses, we divided the number of times each code was assigned to each spouse by the total number of speaking turns of that spouse. Thus, each code was analyzed as a proportion of the total speaking turns to control for variation across spouses in the number of speaking turns. An index of the overall positivity of husbands' and wives' support-seeking behaviors was calculated by computing the difference between the total proportion of positive behavior and the total proportion of negative behavior.

Individual difference variables. As in Study 1, spouses were asked to complete measures of neuroticism (e.g., Eysenck Personality Questionnaire; Eysenck & Eysenck, 1978) and self-esteem (Rosenberg Self-Esteem Questionnaire; Rosenberg, 1965) to control for personality variables that might affect spouses' reporting of stress.

Results

Descriptive statistics. Table 5 presents descriptive statistics for all measures. In general, these newlywed couples began the marriage with highly positive views of the relationship and were observed to exhibit relatively positive behaviors during the support interactions. As in Study 1, these couples reported facing low-to-moderate levels of stress early in the marriage. Finally, spouses' marital resilience scores following the transition to parenthood fell around the midpoint of the scale. Nonetheless, there was notable variability in these scores, suggesting that some couples were exhibiting much better adjustment than others following this transition. To examine for possible gender differences on these variables, we conducted paired-samples t tests. Several significant differences emerged. Wives were initially more satisfied with the marriage than were husbands, $t(49) = -3.6$, $p = .001$, 95% CI [−5.98, −1.70], and reported marginally higher levels of early stress, $t(49) = -1.8$, $p = .08$, 95% CI [−2.91, 0.15]. Husbands exhibited more positive support-seeking behaviors during the interactions, $t(48) = 2.7$, $p = .01$, 95% CI [0.02, 0.16], and reported greater marital adjustment following the transition to parenthood, $t(46) = 2.4$, $p = .02$, 95% CI [0.11, 1.25].

Examination of the correlations between spouses' early external stress and initial relationship variables revealed significant results for wives only. Wives who reported having more stressful lives evaluated their marriages in a more negative light ($r = -.31$, $p < .05$). For wives, stress also was significantly negatively associated with observed support-seeking behaviors ($r = -.31$, $p < .05$), such that wives experiencing greater stress were rated by independent observers as displaying more negative behaviors during the interactions. Finally, support-seeking behaviors were not associated with initial marital satisfaction for husbands ($r = .06$, $p > .05$) or for wives ($r = -.09$, $p > .05$). Again, this finding coincides with prior work indicating that observed behaviors tend not to predict initial newlywed satisfaction (e.g., Johnson et al., 2005).

Not surprisingly, husbands' and wives' reports of marital satisfaction were significantly associated both at the beginning of the marriage ($r = .49$, $p < .001$) and after the transition to parenthood ($r = .46$, $p < .01$), indicating agreement in spouses' appraisals of the relationship. Husbands' and wives' reports of early stress, however, were not significantly associated ($r = .13$, $p > .05$).

Table 5

Means and Standard Deviations (Study 2)

Scale	Husbands		Wives	
	M	*SD*	*M*	*SD*
Initial marital satisfaction	96.2	8.3	100.0	6.2
Early external stress	4.6	3.3	6.0	4.7
Support-seeking behaviors	0.58	0.22	0.49	0.24
Marital adjustment following TTP	6.1	1.7	5.5	2.2

Note. Marital satisfaction scores could range from 15 to 105. Early external stress scores could range from 0 to 51. Support-seeking behaviors scores could range from 0 to 1. Finally, scores for marital adjustment following transition to parenthood (TTP) could range from 1 to 9. For all measures other than external stress, higher scores represent more positive appraisals and behaviors. *SD* = standard deviation.

Thus, as in Study 1, it appeared that spouses were experiencing unique stressors that were not shared with their partner. Finally, support-seeking behaviors were positively correlated within couples ($r = .47$, $p < .01$), suggesting that spouses exhibiting more positive behaviors during the interactions tended to have partners who were similarly constructive. Overall, then, these initial results indicate that all measures performed generally as expected.

Does experience with early stress predict marital resilience following transition to parenthood? To replicate and extend Study 1, we examined stress resilience within a sample of couples coping with a uniform marital stressor. It was predicted that spouses who exhibited more constructive support-seeking behaviors and had more practice coping with small stressors early in the marriage would report better marital adjustment following the birth of their child than would spouses who exhibited good support behaviors but had fewer early stress experiences. To examine this idea, we conducted separate hierarchical regressions for husbands and wives. Two control variables (initial global marital satisfaction and the time point in the marriage when the child was born) were entered on the first step of the regression equation, with spouses' support behaviors (centered) and early experiences with stress (centered) included as predictor variables on the second step. The third step added the interaction of support behaviors and early stress to the equation.

As shown in Table 6, no main effects of early stress experiences or observed support-seeking behaviors emerged for husbands or for wives. However, the interaction of early stress and initial support-seeking behaviors was significant for both partners. Again, we examined these interactions more closely using procedures outlined by Aiken and West (1991) for two continuous variables, with comparisons made at 1 SD from the mean. As shown in Figures 3 and 4, the overall pattern of results was consistent with hypotheses for both spouses. Simple slope analyses confirmed that among spouses who exhibited good support-seeking behaviors, spouses who experienced greater levels of stress early in the marriage reported marginally better marital adjustment following the transition to parenthood than did spouses

who reported fewer early stress experiences: for husbands, $B = 0.54$, $SE = 0.32$, $\beta = .35$, $t(45) = 1.69$, $p = .09$, 95% CI [-0.09, 0.88]; for wives, $B = 0.89$, $SE = 0.48$, $\beta = .39$, $t(45) = 1.85$, $p = .07$, 95% CI [-0.09, 1.87]. Among spouses who exhibited poor support-seeking behaviors, experiences with early stress were not significantly associated with postbirth marital adjustment: for husbands, $B = -0.49$, $SE = 0.33$, $\beta = -.32$, $t(45) = -1.46$, $p = .15$, 95% CI [-1.16, 0.19]; for wives, $B = -0.42$, $SE = 0.46$, $\beta = -.19$, $t(45) = -0.94$, $p = .35$, 95% CI [-1.35, 0.49].

Further analyses were conducted to ensure results held when controlling for neuroticism and self-esteem. Neuroticism did not predict future marital adjustment for husbands, $B = -0.34$, $SE = 0.26$, $\beta = -.22$, $t(39) = -1.33$, $p = .19$, 95% CI [-0.86, 0.18], or for wives, $B = 0.48$, $SE = 0.37$, $\beta = .22$, $t(40) = -1.30$, $p = .20$, 95% CI [-0.27, 1.23]. Likewise, self-esteem was not associated with future adjustment for either spouse: for husbands, $B = 0.35$, $SE = 0.24$, $\beta = .26$, $t(39) = 1.46$, $p = .15$, 95% CI [-0.14, 0.84]; for wives, $B = 0.01$, $SE = 0.37$, $\beta = .01$, $t(45) = 0.03$, $p = .98$, 95% CI [-0.73, 0.75]. Including these control variables did not affect the reported interaction. Overall, then, these findings conceptually replicated the results from Study 1.

Discussion of Study 2

Our goal in Study 2 was to replicate and extend Study 1 by examining stress resilience in a new sample and in the context of a particular future stressor, namely, the transition to parenthood. As expected, evidence for stress resilience was found for husbands and for wives, such that marital well-being was most resilient to the stresses of parenthood when spouses experienced more stress early in the marriage and had good initial relationship resources for navigating that stress. This finding, in a new sample and with a different assessment of stress resilience, conceptually replicates the general pattern of findings from Study 1 and thus lends support for the generalizability of the effect.

Table 6

Observed Support-Seeking Behaviors, Early Stress, and Their Interaction as Predictors of Marital Adjustment Following the Transition to Parenthood (Study 2)

Variable	B	SE	t	Standardized β	95% CI	
					LL	UL
Husbands (df = 40)						
Initial marital satisfaction	−0.17	0.24	−0.72	−.11	−0.65	0.31
When gave birth	0.31	0.23	1.37	.20	−0.15	0.77
Early stress	0.03	0.23	0.12	.02	−0.44	0.49
Observed support behaviors	0.39	0.24	1.64	.25	−0.09	0.88
Wives (df = 40)						
Initial marital satisfaction	0.63	0.36	1.76†	.28	−0.10	1.37
When gave birth	0.32	0.33	0.98	.16	−0.34	0.98
Early stress	0.23	0.39	0.59	.10	−0.56	1.03
Observed support behaviors	−0.05	0.32	−0.17	−.03	−0.70	0.59
Stress × Support Behaviors interaction						
Husbands	0.51	0.23	2.21*	.34	0.04	0.98
Wives	0.66	0.26	2.55**	.38	0.14	1.18

Note. SE = standard error; CI = confidence interval; LL = lower limit; UL = upper limit; df = degrees of freedom.
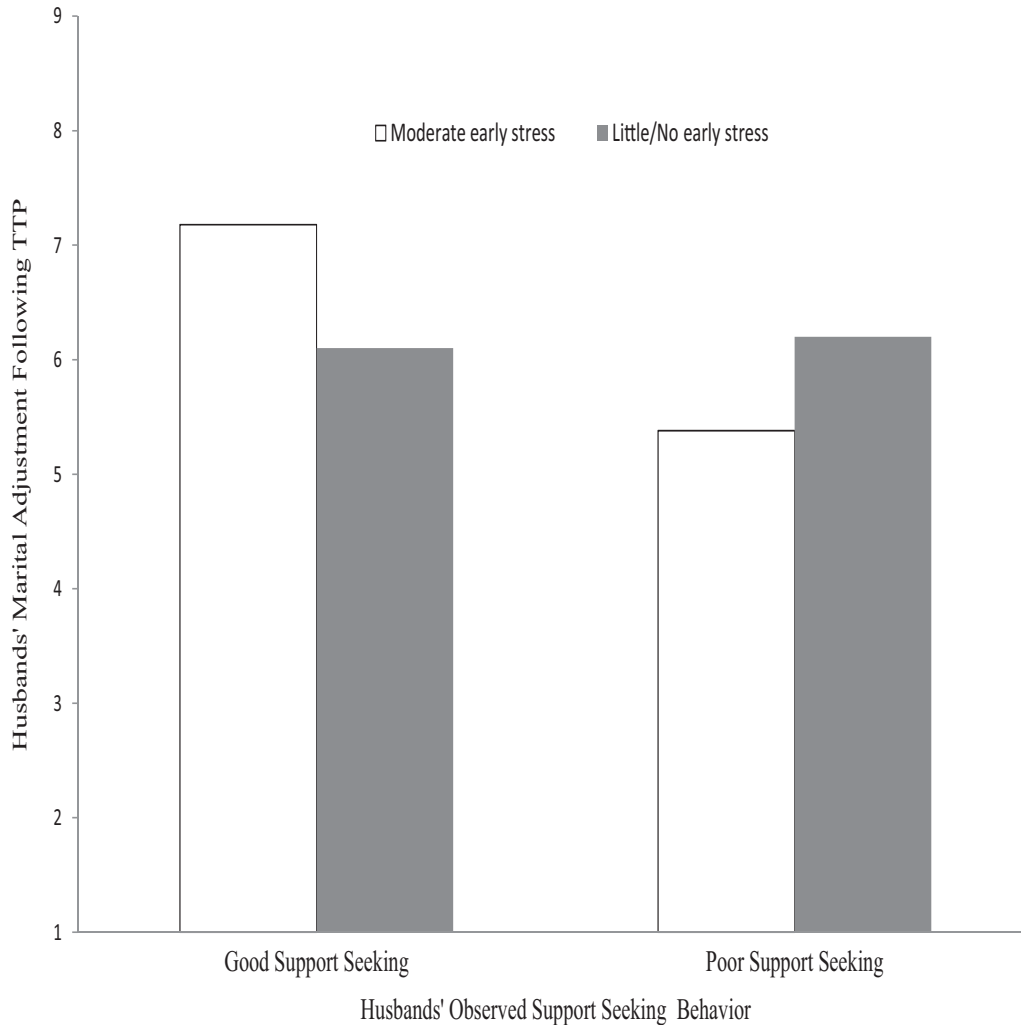† $p < .10$. * $p < .05$. ** $p < .01$.

Figure 3. The interaction of early stress and observed support-seeking behaviors on marital resilience following the transition to parenthood (TTP) for husbands.

General Discussion

Relationship scientists have long contended that our understanding of marital development and stability "might be enhanced if we adopted the perspective of civil engineers who typically calculate a structure's durability relative to the environmental forces it can withstand without disintegrating" (Berscheid, 1999, p. 265). It has been well established that stressful environments place particular demands on marriages that often can destabilize the marital structure, even within initially strong and healthy relationships. Yet, little is known about the amount of strain marriages can withstand before unraveling and the factors that aid couples in developing greater resilience to the damaging forces of stress. Drawing from models of stress inoculation, the current paper suggests that practice makes perfect. Just as exposure to a weakened form of a disease can help the body build antibodies for fighting stronger forms of the pathogen, exposure to moderate, manageable stressors early in the marriage may help the couple build defenses against the effects of later stressors on marital happiness (Meichenbaum,

1985). Spouses who experience moderate stress early in the marriage and possess adequate initial resources for coping with that stress should acquire a greater knowledge of adaptive coping strategies and increased confidence in their ability to manage difficult situations, making the successful adaptation to future stressors more likely. In this way, for couples with good initial relationship resources, weathering small challenges can enhance the durability of the marriage over time.

Evidence for these kinds of stress resilience effects were found in two separate studies of newlywed couples. It is important to note that the pattern of results was identical across studies, even though the studies relied on different methods of assessing resilience and measured different relationship resources. Study 1 derived an index of stress resilience by examining the within-person covariance between spouses' external stress and marital satisfaction over the 2-year period that followed the initial study assessment. A larger, negative covariance indicated that spouses' marital satisfaction was strongly affected by fluctuating stressful conditions
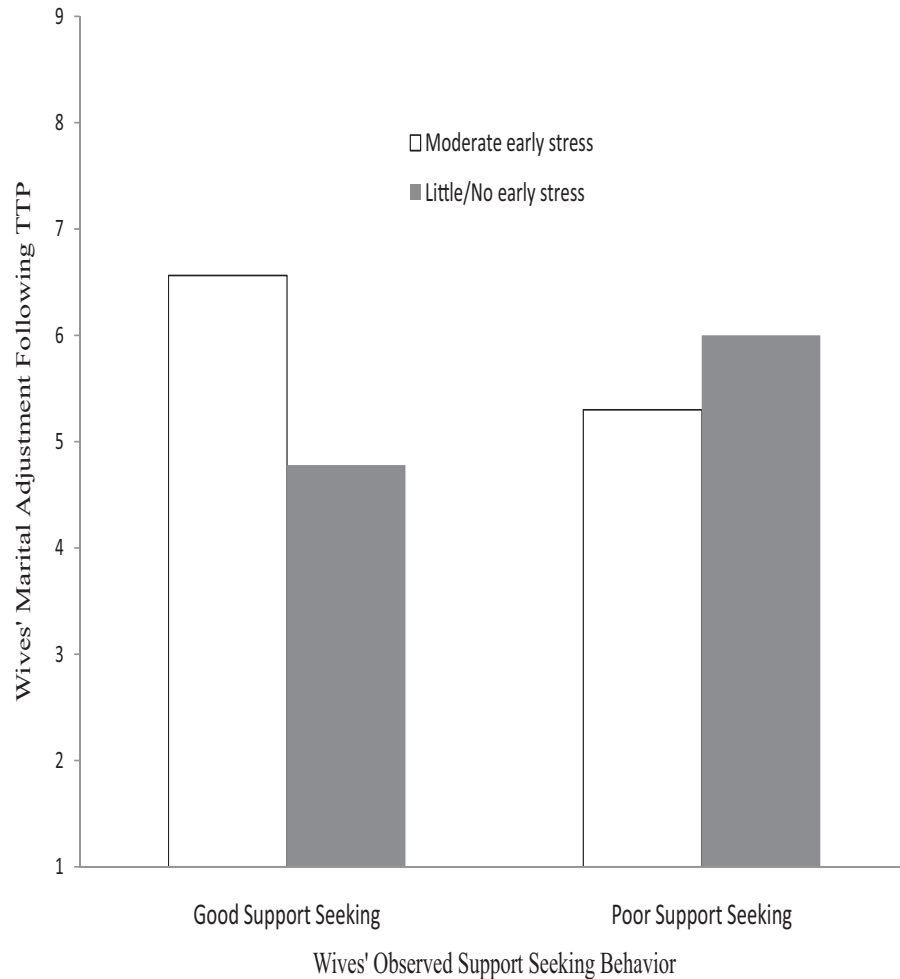
Figure 4. The interaction of early stress and observed support-seeking behaviors on marital resilience following the transition to parenthood (TTP) for wives.

and thus represented higher stress spillover. A weaker covariance, on the other hand, indicated greater stress resilience, as for these spouses marital well-being was more robust in the face of changing stressful circumstances. On average, spouses experienced significant stress spillover during the early years of marriage. However, for wives though not husbands, observed problem-solving behaviors and early stress experiences, both measured at the initial study assessment, interacted to predict the strength of that future spillover effect. Among wives who displayed good problem-solving behaviors, those who experienced more stress at the beginning of the marriage exhibited greater stress resilience over the next 2-year period than did wives who reported fewer early stress experiences. For wives displaying poor problem-solving behaviors, early stress experiences were not significantly associated with future resilience. Further analyses revealed a potential mechanism underlying these stress resilience effects. Among wives who displayed good problem-solving behaviors, those who had more early experience coping with stress also reported the greatest increases in their feelings of efficacy as the marriage progressed. Moreover, efficacy expectations were found to mediate the link between early coping experiences and later responses to stress. Thus, practice

managing small stressors may bolster confidence in one's ability to surmount tough challenges, leading to greater future resilience.

Study 2 extended these findings by examining stress resilience in newly married couples undergoing the transition to parenthood. In this study, results were found for husbands and for wives, such that spouses' observed support-seeking behaviors and early stress experiences, both measured when the couple was first married, predicted marital adjustment following the birth of their first child years later. As in Study 1, among spouses who displayed good support-seeking behaviors, spouses who experienced more stress at the beginning of the marriage reported higher marital happiness after the transition to parenthood than did spouses who had less early experience coping with stress. Again, for spouses displaying poor support-seeking behaviors, early stress experiences were not significantly associated with postbirth marital adjustment. Together, then, these studies suggest that beginning a marriage with good initial relationship resources may not be sufficient to protect couples from the deleterious effects of future stress. Rather, marriages were more resilient when spouses both had good initial resources and had some practice implementing those coping resources under moderately stressful conditions.

These findings offer additional perspective on the links between stress and marital quality, and they may give new insight into some seemingly contradictory findings in the field. Namely, many studies examining the effects of stress on relationships have argued for a stress-buffering model of pro-relationship behaviors, such that spouses exhibiting better relationship "skills" should be less prone to experiencing stress spillover effects (Gottman, 1994). This perspective has informed the approach of many marital intervention programs, which argue that equipping couples with better communication abilities may aid them in becoming resilient to stress (Markman, Stanley, & Blumberg, 1994). However, other research considering changes in spouses' positive relationship behaviors over time has suggested that these behaviors may deteriorate under conditions of stress (Neff & Karney, 2004, 2009). Rather than acting as a protective buffer, pro-relationship behaviors, such as effective problem solving or forgiving attributions, may actually represent the mechanism through which stress impacts marital quality. Piecing these findings together with the current results may point to a curvilinear association between the severity of external stressors experienced and marital outcomes (see also Seery et al., 2010; Tesser & Beach, 1998). Beginning a marriage with little-to-no stress robs the couple of the opportunity to put their relationship resources to the test, and this can leave couples at risk for marital declines when future stressors, such as the transition to parenthood, are encountered. Increases in stress from low to moderate, on the other hand, provide couples a training ground in which to hone their coping responses. Under these conditions, resources such as effective problem-solving capabilities should serve to buffer the marriage from stress and help couples to build additional resources for facing future stressful events. As stressors continue to accumulate beyond this point, however, stress may overwhelm spouses' coping capabilities. High levels of stress may sap couples' energy and drain coping resources, leaving couples with a diminished capacity for enacting pro-relationship behaviors and a greater vulnerability to spillover effects. Thus, stress resilience effects should be found only at moderate, manageable levels of stress. Nonetheless, future research should examine these complex and nonlinear relationships.

Strengths and Limitations of the Studies

The current studies contained a number of strengths in their methodology and design that serve to enhance our confidence in the results. First, both studies utilized methodologies that serve to limit the possibility of third variables influencing the results. For instance, both studies relied on observational methods to assess spouses' relationship behaviors. Using observational techniques rather than self-report methods ensured that the association between spouses' relationship behaviors and marital outcomes would not be artificially inflated due to shared method variance. In addition, within-subject analyses were used in Study 1 to examine the associations between stress and marital satisfaction over time to derive an index of stress resilience. These analyses allowed for the estimation of the association between changes in stress and changes in satisfaction, controlling for spouses' stable tendencies to view their stress and their relationship in a particular manner. Also, rather than relying on spouses' idiosyncratic subjective ratings of the negativity of the stressful events in their lives, we measured early stress in Study 2 simply by asking spouses whether

a list of concrete, potentially negative events had occurred. Such a measure should serve to limit perceptual biases in spouses' reports. As a final precaution, both studies controlled for several personality factors known to influence spouses' evaluations of their stress and their marriage when examining these resilience effects.

Second, the current studies examined stress resilience in the context of positive and negative life stressors. Study 1 examined marital resilience to a variety of negative life circumstances, and Study 2 examined resilience following the transition to parenthood, an event that is often considered a positive, yet stressful, experience. The fact that the identical pattern of results was found in the two contexts highlights the generalizability of the effect.

Finally, in contrast to much prior research that has addressed samples varying widely in marital duration, the analyses reported here examined data from a relatively homogeneous sample of newlywed couples, reducing the likelihood that these effects resulted from uncontrolled differences in marital duration. Examining resilience in this sample of couples not yet experiencing marital distress may be useful for identifying couples who may be at risk for deterioration and divorce. Moreover, the use of a fairly homogeneous sample provided a more conservative test of our hypotheses.

Though an important strength, the use of a homogeneous sample of happy couples was also a limiting factor, as the range of early stress scores was somewhat restricted. As mentioned, couples in both studies began their marriages reporting low-to-moderate levels of external stress. Thus, though this sample was ideal for testing hypotheses of stress resilience, a sample of couples reporting a larger range of early stress experiences may have presented a more complete picture of the links between early stress and future resilience. As previously described, in a more heterogeneous sample, the associations between early stress and future resilience may be curvilinear. When early stress increases above moderate levels, it may overwhelm spouses' coping abilities rather than mobilize coping responses, thereby weakening the marriage and leaving couples even more vulnerable to future spillover effects.

A second potential limitation of the current studies is that though resilience effects were found for husbands and wives in Study 2, Study 1 revealed significant resilience effects for wives only. The stress and marriage literature is replete with inconsistencies regarding gender differences in the links between external stress and marital satisfaction. Some work has shown no gender differences in stress spillover (e.g., Bodenmann, 1997), and other work has shown stronger spillover effects for wives than for husbands (e.g., Matjasko & Feldman, 2006; Neff & Karney, 2004). Further confusing matters, a handful of studies (e.g., Bolger et al., 1989) have shown stronger stress–marriage links for husbands than for wives. More relevant to this paper, gender differences in the qualities that predict spillover have frequently been found in the literature examining moderators of spillover effects (Matjasko & Feldman, 2006). Thus, although the general pattern of results was consistent across both studies, further research is needed to build on this work and tease apart potentially important gender differences in stress resilience processes.

Conclusions

The environmental context in which couples form and maintain their relationships often plays an important role in shaping marital outcomes. Traditionally, it has been argued that stressful contexts render preserving a healthy relationship more difficult. However,

the current studies offer some of the first empirical evidence of stress resilience within marriage and suggest that under certain conditions, stress can enhance the durability of a marriage. By addressing the conditions under which couples may be more or less susceptible to stress spillover effects, these studies provide a fuller appreciation of the links between stress and marital quality.

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