

The Longitudinal Association Between Attributions and Marital Satisfaction: Direction of Effects and Role of Efficacy Expectations

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This study investigated the direction of possible causal effects between attributions for negative partner behavior and marital satisfaction and tested whether any effects are mediated by efficacy expectations regarding marital conflict. Couples married for 15–20 months completed measures of attribution and satisfaction at Time 1 and at Time 3 (18 months later). At Time 2 (6 months after Time 1) they completed a measure of efficacy expectations. For both husbands and wives, a cross-lagged effects model showed that the paths from causal attributions to later satisfaction and from satisfaction to later causal attributions were significant. Efficacy expectations mediated the temporal relation between attributions and satisfaction. These findings support the assumption that there is a reciprocal causal influence between attributions and satisfaction but suggest important modifications to models of close relationships and marital therapy.

The study of cognition in close relationships has become an established area of inquiry (cf. Fincham, 1994; Fletcher & Fincham, 1991; Fletcher & Fitness, 1996). One of the most widely studied topics in this domain is explanations or attributions for marital events, and a

robust association between attributions and marital satisfaction has been documented (for a review, see Fincham, in press). Although this research is largely motivated by theoretical analyses that posit a causal relation between attributions and marital satisfaction (e.g., Baucom, 1987; Bradbury & Fincham, 1990), few studies have investigated the causal status of attributions in close relationships. Moreover, longitudinal studies that have attempted to examine a potential causal relation between attributions and relationship satisfaction have tended to investigate relatively stable, established marriages using data-analytic techniques that are not optimal for examining causal effects. Finally, there has been no attempt to identify factors that might mediate any causal relation between attributions and marital satisfaction. The present study therefore used structural equation modeling (SEM) techniques to examine the relation between attributions and marital satisfaction in recently wed spouses at two points in time separated by an 18-month interval and tested whether spouse expectations to engage in effective conflict resolution medi-

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ate the relation between attributions and marital satisfaction.

Attributions and Relationship Satisfaction

The attribution hypothesis in close relationships research posits an association between attributions and relationship quality: Specifically, attributions that accentuate the impact of negative relationship events and minimize the impact of positive relationship events are associated with lower relationship satisfaction. Thus, for example, locating the cause of negative relationship events in the partner, viewing the cause as more stable and global, and seeing the partner's behavior as intentional, blameworthy and reflecting selfish motivation are more likely among distressed partners than among their nondistressed counterparts.

The attribution-satisfaction association is arguably the most robust phenomenon in the close-relationship literature. Across attributional dimensions an average of 80% of relevant studies support the attribution hypothesis, and no data have emerged that are directly contrary to the hypothesis (Fincham, Bradbury, & Scott, 1990). In addition, numerous plausible alternative hypotheses for this association have been ruled out. Thus, the attribution-satisfaction association is not culture specific (e.g., Sabourin, Lussier, & Wright, 1991), an artifact of the manner in which attributions are assessed (e.g., Fincham & Beach, 1988), or due to depression (e.g., Fincham, Beach, & Bradbury, 1989), negative affectivity (e.g., Karney, Bradbury, Fincham, & Sullivan, 1994), or relationship violence (e.g., Fincham, Bradbury, Arias, Byrne, & Karney, 1997). Although encouraging, these data do not speak to the assumption that motivates interest in covariation between attributions and relationship satisfaction, namely, the belief that attributions initiate or maintain dissatisfaction.

Do Attributions Influence Relationship Satisfaction?

At the practical level, the belief that attributions are central in determining marital quality is so strong that clinical interventions for marital dysfunction have attempted to change spou-

sal attributions (e.g., Baucom & Lester, 1986; Baucom, Sayers, & Sher, 1990). Similarly, at the theoretical level, several models of close relationships assign inferences about partner behavior a central role in determining relationship quality (e.g., Baucom & Epstein, 1990; Bradbury & Fincham, 1987; Kelley et al., 1983; Weiss, 1984).

As regards attributions specifically, Bradbury and Fincham (1990) offered a theoretical framework linking attributions, satisfaction, and behavior in close relationships. According to this framework, attributions can be linked indirectly to satisfaction because of their impact on the perceiver's behavior toward the partner, and studies documenting a link between attributions and behavior support this aspect of the framework (e.g., Bradbury, Beach, Fincham, & Nelson, 1996; Fincham & Bradbury, 1992; Miller & Bradbury, 1995). Through processing either their own behavior or partner responses to their own behavior, the perceiver's prior attribution may influence his or her short-term satisfaction. Alternatively, attributions can have a direct impact on short-term satisfaction. For example, viewing a negative partner behavior as selfishly motivated, intentional, and blameworthy is likely to activate a negative evaluation of the spouse and lead to a temporary reduction in relationship satisfaction. Whether influenced indirectly or directly, longer term changes in relationship satisfaction are likely to the extent that the attribution-satisfaction association is repeatedly and consistently activated. The well-documented association between the tendency to make certain attributions (e.g., the conflict-promoting attributions described earlier) across different partner behaviors and marital satisfaction is consistent with this part of the framework.

The theoretical importance given to attributions in accounting for relationship quality in the marital literature stands in contrast to Heider's (1958) observations in which he accorded the affective relation between *p* and *o* a central role in accounting for attributions; for example, "If *p* who dislikes *o* also benefits *o*, the action will be suspect and ulterior motives will be looked for" (p. 258). From this perspective, it is plausible that relationship quality accounts for attributions. Bradbury and Fincham (1990) incorporated this possibility into their framework by specifying a bidirectional relation between

attributions and satisfaction. However, research that examines possible bidirectional relations between attributions and relationship satisfaction is limited, and researchers have instead focused on the impact of attributions on relationship quality. Two types of data address this question: Experimental data provide indirect evidence, and longitudinal data directly examine the possible impact of attributions on marital satisfaction.

In one of the few experimental studies conducted on attributions and relationships, Seligman, Fazio, and Zanna (1980) showed that making salient the extrinsic reasons for being in a dating relationship resulted in lower scores on Rubin's (1973) Love Scale. However, this effect was not found for global ratings of loving and liking or for scores on Rubin's Liking Scale and failed to replicate in a later study (Rempel, Holmes, & Zanna, 1985). In a related vein, there is some experimental evidence showing that attributions influence behavior toward the partner (Fincham & Bradbury, 1988), which is consistent with the earlier discussion of an indirect pathway linking attributions and relationship quality.¹

Longitudinal data are most often cited to support the existence of effects from attributions to relationship satisfaction. Four studies provide evidence to suggest that attributions may influence relationship satisfaction. Fletcher, Fincham, Cramer, and Heron (1987) found that attributing the maintenance of a dating relationship equally to oneself and one's partner predicted higher relationship happiness 2 months later. However, this attribution did not predict later ratings of love, and a second measure of attribution failed to predict either love or happiness. In a second study, Fincham and Bradbury (1987c) assessed marriages at two points separated by a 12-month interval and found that wives' initial causal and responsibility attributions predicted later satisfaction. Consistent with a unidirectional causal relation, initial satisfaction did not predict later attributions. However, these results must also be interpreted with caution as no effects were found for husbands.

In a third study, Fincham and Bradbury (1993) examined whether the longitudinal relation found between causal attributions and marital satisfaction might reflect their mutual covariation with depression and self-esteem.

Using a 12-month lag between data collections, they found that causal attributions predicted later marital satisfaction for both husbands and wives above and beyond initial satisfaction, depression, and self-esteem. For husbands, however, earlier marital satisfaction also predicted later attributions, suggesting that the direction of effects between them might be bidirectional, a possibility that points to the need for all hypothesized effects to be tested in a single model.

As attributions have been found to covary with marital violence (Holtzworth-Munroe & Hutchinson, 1993), Fincham, Bradbury, et al. (1997) examined the longitudinal relation between causal and responsibility attributions and marital satisfaction in nonviolent spouses. Using a sample of newlywed husbands who had not engaged in marital violence, they showed that responsibility but not causal attributions predicted marital satisfaction 12 months later beyond that which could be predicted from initial satisfaction. The relation between earlier satisfaction and later attributions could not be examined as attributions were not assessed at the second data collection.

Overall, then, available data support the view that attributions may influence relationship satisfaction. However, this conclusion should be viewed with considerable caution for several reasons. First, the longitudinal relation between attributions and later satisfaction has not been found consistently and has varied as a function of gender and type of attribution examined.

¹ Marital therapy outcome research can provide experimental data to determine the nature and direction of any causal relation between attributions and marital satisfaction. However, the few studies available on attributions and therapy outcome tend to have focused again on the effect of attribution on satisfaction (e.g., Baucom & Lester, 1986; Margolin & Weiss, 1978). Although these studies showed that supplementing standard behavioral treatments with attributional interventions fails to enhance treatment outcome, they did not provide satisfactory evidence on the nature of the relation between attributions and satisfaction for a number of reasons. Foremost among these are the failure to document the manipulation of attributions, the weak attribution interventions used, and the power of the studies to detect differences between treatments (see Fincham, Bradbury, & Beach, 1990).

Second, only two of the studies have examined different types of attributions, and neither has addressed whether causal and responsibility attributions are best retained as distinct constructs in longitudinal studies or whether they are best conceptualized as indicators of a latent attribution construct as has been done in recent empirical research (e.g., Karney et al., 1994). Third, the relation between satisfaction and later attributions has been considered in only three of the four studies, one of which supports a possible effect from satisfaction to attributions. Fourth, the methodologies and data analyses used in prior studies are quite limited.

Improving Methodologies and Data-Analytic Strategies

Cross-sectional investigations dominate research on the attribution-satisfaction association, but they yield data that are typically subject to multiple competing and contradictory interpretations. Panel designs provide a better method for analyzing change as they provide information on cross-sectional and longitudinal variation (Kessler & Greenberg, 1981). Although such designs have been used in a few studies on the attribution-satisfaction association, the data have not been examined in a way that is most sensitive to addressing questions of direction of effects.

All four longitudinal studies used ordinary least squares regression procedures to examine the longitudinal relation between attributions and satisfaction. Because they control for associations among predictor variables, regression analyses are an improvement over the most frequently used statistic to examine longitudinal relations in marital research, namely, zero-order correlations (Karney & Bradbury, 1995). However, parameter estimates for predictor variables in regression analyses do not control for other paths posited in the causal system. SEM circumvents this difficulty by simultaneously estimating all parameters in a hypothesized system of relations and also allows improved measurement through the estimation of latent constructs. It was therefore used in the present study.

Finally, sampling methods may also bias previous findings or limit their generalizability. Karney et al. (1995) argued that samples drawn from public records are often superior in creat-

ing a representative sample and have the added advantage of allowing any bias resulting from refusal to participate to be quantified. Also, any effects between attributions and satisfaction may vary as a function of length of the relationship. Thus, the investigation of well-established, relatively stable marriages in two of the three longitudinal marital studies reviewed may have led to underestimates of longitudinal relations compared with data obtained from recently married couples for whom there is more ongoing change in the relationship. It is therefore important to investigate samples that are relatively homogeneous with regard to years of marriage to reduce error variance and obtain a better picture of true effects. Accordingly, the current study investigated couples in the 2nd year of marriage who were recruited from public records.

Greater confidence could be placed in a longitudinal relation between attributions and marital satisfaction if it were documented using the methodological and data-analytic improvements described above. However, the documentation of such an association under these more rigorous conditions raises the question of how to account for the association, an issue that is addressed next.

Do Efficacy Expectations Mediate the Association Between Attributions and Marital Satisfaction?

In an important theoretical statement, Doherty (1981a, 1981b) argued that conflict between intimates prompts them to engage in two cognitive processes. The first concerns attributions because it involves asking why the conflict arose. The answer to this attributional question is hypothesized to influence the second process. The second process concerns efficacy expectations or the perceiver's belief that he or she can execute the behaviors needed to resolve the conflict. Thus, for example, a spouse who attributes a marital conflict to his or her own inability to communicate clearly his or her strongly held preferences is likely to have different efficacy expectations about resolving the conflict than a spouse who attributes the conflict to temporary work pressures that have not allowed him or her to engage the conflict with the partner.

Consistent with Doherty's (1981a, 1981b) attribution-efficacy model of conflict, one can hypothesize that spouse attributions will be associated with efficacy expectations. This relation between attributions and efficacy follows from the fundamental tenet of attribution theory that attributing effects to causes helps to make the world more predictable and potentially controllable. Once the cause of an event is determined, attention can be devoted to executing behavior that will address the cause and lead to more desired outcomes. However, conflict-promoting attributions for negative partner behavior (e.g., locating cause in one's partner and using stable, global attributions, such as, "He didn't do it because he is lazy") are likely to be less controllable by the spouse and lead to lower efficacy expectations for changing the behavior. In contrast, relationship-promoting attributions (e.g., locating cause externally to one's partner and using unstable, specific attributions, such as, "He didn't do it because I asked him at the last minute and didn't give him enough time") are likely to be more controllable and lead to higher efficacy expectations; if not controllable, their temporary, specific nature should lead to perceived efficacy in dealing with the behavior in the future.

Doherty (1981a, 1981b) went on to argue that attributional and efficacy information were complementary in predicting conflict behavior, with attributions predicting the target and affective valence of conflict behavior and efficacy expectations predicting persistence versus helplessness effects. The few available studies informed by Doherty's analysis support the hypothesized links between attribution dimensions and efficacy expectations and between attribution dimensions and efficacy expectations and conflict behavior (e.g., Bradbury, 1989; Fincham & Bradbury, 1987b; Vanzetti, Notarius, & NeeSmith, 1992).

Although related, the constructs of conflict and relationship satisfaction are not equivalent, which raises the possibility that attributions and efficacy expectations play different roles in regard to relationship satisfaction. The construct of relationship satisfaction received little attention in Doherty's analysis but when it was mentioned, low efficacy expectations were said to result in diminished satisfaction (Doherty, 1981b, p. 38). There is some empirical support

for this view in that efficacy expectations are inversely related to current marital satisfaction (Bradbury, 1989; Meeks, Arnkoff, Glass, & Notarius, 1986) and satisfaction 12 months later (Bradbury, 1989).

Why should there be an association between efficacy expectations regarding conflict and relationship satisfaction? In the marital literature it is widely accepted that satisfaction is influenced by marital behavior and that "distress results from couples' aversive and ineffectual response to conflict" (Koerner & Jacobson, 1994, p. 208). Ineffectual responses to conflict are, in turn, likely to lead to low efficacy expectations and thereby result in an association between distress and efficacy. Alternatively, one can argue that low expected probability of being able to resolve conflict, combined with a high desire to resolve conflict (most couples tend to find conflict aversive), will not only influence behavior but is in itself demoralizing and will over time influence overall expectancies about the relationship and thereby erode relationship satisfaction. Thus, whether through influencing conflict-related behavior or through overall relationship expectations, efficacy beliefs will be related to relationship satisfaction. The possible existence of an association between efficacy expectations and marital satisfaction calls for reconsideration of the attribution-satisfaction association.

At the theoretical level, it can be argued that the relation between outcomes (e.g., marital satisfaction) thought to result from attributions (e.g., for negative partner behavior) is not direct but depends on the perceived ability to control or effectively deal with the factors identified by the attributional analysis. After all, attributions are presumed to be necessary for helping people predict and control their world and are therefore seen to be ubiquitous (Heider, 1958). It is the expectations concerning control, rather than the attributions themselves, that are likely to be more proximal in determining outcomes associated with attributions. Thus, it can be hypothesized that efficacy expectations mediate the relation between attributions and marital quality. This hypothesis is consistent not only with Doherty's analysis but also with a number of theoretical perspectives, including Weiner's (1986) attribution theory of motivation and the attributional reformulation of learned helplessness.

ness theory (Abramson, Seligman, & Teasdale, 1978). In these theories, attributions influence expectancies about the future, which are, in turn, the proximal cause of a number of outcomes. In the case of helplessness theory, these include chronic affective outcomes such as depression, which is known to be reliably associated with marital dissatisfaction (see Beach, Fincham, & Katz, 1998), providing further indirect empirical support for a link between efficacy and marital satisfaction. In any event, if the preceding analysis is correct, efficacy expectations should play a role in mediating any effect of attributions on later marital satisfaction.

Method

Sample

The sample comprised 130 couples who had married 15–20 months earlier and lived in small towns (range = 10–100,000 persons) in the Midwest. As part of a larger study in which a variety of data were collected,² potential participants had been identified through marriage license records and marriage announcements in local newspapers. Couples were contacted and asked if they were living together, if both spouses could read and speak English, and if both spouses had completed at least the 10th grade of high school (to ensure that they could read and understand all questionnaires). Couples meeting these eligibility criteria were given a brief description of the project and were invited to participate in the study. Over 80% of eligible couples agreed to do so.

Couples had a modal gross annual income between \$25,000 and \$29,999. Approximately 92% of the sample were Caucasian, 2% were Hispanic, 2% were Asian, 3% were African American, and 1% indicated "other" for their race. Husbands averaged 28.9 years of age ($SD = 6.7$) and 15.6 years of formal education ($SD = 2.9$). Corresponding figures for wives were 27.8 years of age ($SD = 6.5$) and 15.0 years of formal education ($SD = 2.3$).

Measures

Marital satisfaction. Most traditional measures of marital quality comprise heterogeneous items creating the potential for spurious associations with other marital variables (e.g., measures of communication; see Fincham & Bradbury, 1987a). Consequently, the Quality Marriage Index (QMI; Norton, 1983) was used as it comprises six items that ask for overall evaluative judgments about the marriage.

Five items ask spouses to rate, on a 7-point scale ranging from 1 (*very strong disagreement*) to 7 (*very strong agreement*), the extent to which they agree with statements about their marriage (e.g., "We have a good marriage"). The sixth item requires spouses to judge their overall marital happiness on a 10-point scale. Scores on the QMI range from 6 to 45. Coefficient alpha for this scale was high (for husbands, Time 1 = .92, Time 2 = .94; for wives, Time 1 = .94, Time 2 = .92).

Attributions. Attributions were assessed using the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992). This measure presents respondents with four negative partner behaviors that have been found to occur in virtually all marriages (e.g., "Your spouse criticizes something you say") and asks them to rate their agreement, on a 6-point scale ranging from 1 (*disagree strongly*) to 6 (*agree strongly*), with each of six statements that reflect causal and responsibility attribution dimensions. Reliability of the indices pertaining to each attribution type is high (average $\alpha = .90$; average 2-week test-retest reliability = .76), and both types of attributions correlate with observed behavior independently of marital satisfaction (Fincham & Bradbury, 1992).

The Causal Attribution Index (RAM-C) comprises 12 judgments (3 dimensions by 4 stimulus events), and the Responsibility Attribution Index (RAM-R) similarly comprises 12 judgments. The RAM-C index was formed by summing the responses across assessment of causal locus, stability, and globality and was found to be highly reliable in the present study (for Time 1, husbands' $\alpha = .82$, wives' $\alpha = .87$; for Time 2, husbands' $\alpha = .84$, wives' $\alpha = .87$). For responsibility attributions, respondents indicated the extent to which the partner behaved intentionally, was selfishly motivated, and was blameworthy for the event (for Time 1, husbands' $\alpha = .92$, wives' $\alpha = .93$; for Time 2, husbands' $\alpha = .90$, wives' $\alpha = .92$). For both indices, higher scores indicate attributions that are likely to accentuate the impact of negative events and are therefore posited to be inversely related to marital satisfaction.

Efficacy expectations. A measure devised by Bradbury (1989) was used to assess the extent to which a spouse believed he or she had the ability to resolve conflicts with his or her partner. This measure requires respondents to rate the extent to which they agree, on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with seven statements (e.g., "I am

² Although an article has been published using data from the same sample used in this study (Fincham, Beach, & Kemp-Fincham, 1997), none of the variables reported here (other than gender and time) overlap with variables reported in that article.

able to do the things needed to settle our conflicts"). Higher scores reflect greater perceived efficacy and correlate directly with higher quality problem-solving behavior among wives and inversely with the amount of anger displayed during a problem-solving discussion by both husbands and wives.³ Coefficient alpha for this measure was high (husbands = .87; wives = .90).

Procedure

After agreeing to participate in the study, couples were mailed a package that included two postage-paid return envelopes, a cover letter informing them about the importance of independently completing their tasks, and a battery of questionnaires that included consent forms, demographic forms, the RAM, and the QMI. Couples were prompted to return the materials if they had not done so in a timely manner and were paid \$20 when the completed materials were received.

Approximately 6 months after the Time 1 data collection, couples were again sent a package of materials with two postage-paid return envelopes and a cover letter asking them to complete the questionnaires, which included the measure of efficacy expectations. Couples received \$10 for returning the materials.

Finally, 18 months after the initial data collection, couples were invited to visit our research rooms at the university. During the visit, they completed the attribution and satisfaction measures. Additional self-report, interview, and interactional data were collected but are beyond the scope of this article and hence are not reported here. At the end of the session, couples were debriefed and paid \$30.

Across the three waves of data collection, 8 couples separated or divorced, the husband in 1 couple died, 7 couples could not be contacted by mail or telephone, and 6 couples declined to continue their participation. Initial QMI and attribution scores of those who provided and did not provide information across the three data collections were compared using a *t* test. No group differences were found on any of the measures for husbands or for wives ($p < .05$). Because multivariate analysis using SEM requires listwise deletion of missing data points, 10 couples with missing data points were not used in the analyses that were conducted on the 98 couples with complete data.

Results

Correlations among the variables appear in Table 1 with their means and standard deviations. Replicating prior findings, attributions

and marital satisfaction were inversely related both concurrently and longitudinally. Also consistent with past research, stability estimates for attributions and marital satisfaction were moderate to strong (range = .48–.74, $p < .01$). As expected, efficacy expectations were positively related to marital satisfaction and negatively related to cause and responsibility attributions for both spouses (e.g., for Time 1 to Time 2, husbands' $r_s = .45, -.30$, and $-.43$, respectively, $p < .01$; wives' $r_s = .72, -.32$, and $-.49$, respectively, $p < .01$). Although several interesting magnitude differences were apparent between spouses and across constructs (see above), these differences were not statistically significant (see Table 1).

Modeling Strategy

The present study advanced understanding of the attributions–marital satisfaction link by simultaneously considering causal and responsibility attributions as they relate to marital satisfaction over time. Previous longitudinal studies have tended to either focus on one type of attribution (e.g., Fincham & Bradbury, 1993) or estimate parameters relating to them independently (e.g., Fincham et al., 1997). Further, no longitudinal study has explored the possibility that causal and responsibility indices may reflect an underlying, general attributional construct (see Karney et al., 1994). Although it is important to examine this possibility, it is equally important to recognize that estimation of any structural relations between a latent attribution measure and marital satisfaction may mask important theoretical differences in the predictive role of cause and responsibility attributions. Accordingly, we conducted two sets of cross-lagged analyses. First, a two-wave, two-variable cross-lagged panel model was estimated. Causal and responsibility attributions were used as indicators of a latent attribution

³ Doherty (1981b) defined efficacy expectations in terms of the couple's ability to master interpersonal conflicts. An analogous set of seven items in which the referent was the couple rather than the respondent was therefore also investigated. The two forms of the efficacy measure are highly correlated (wives = .89; husbands = .84; Yonan, 1990). In light of this finding, and for ease of interpretation, the version of the measure pertaining to self-judgments was used in this study.

Table 1
Intercorrelations for All Indicators of Constructs Included in the Analyses

| Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 | M | SD |
|---|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| 1. Marital satisfaction (QMI) ^a | — | -.34** | -.47** | .72** | .60** | -.29** | -.44** | 38.06 | 8.10 |
| 2. Responsibility attributions ^a | -.38** | — | .53** | -.32** | -.23** | .69** | .38** | 25.52 | 10.17 |
| 3. Causal attributions ^a | -.44** | .51** | — | -.49** | -.41** | .39** | .74** | 39.70 | 9.95 |
| 4. Efficacy expectations | .45** | -.30** | -.43** | — | .54** | -.29** | -.52** | 37.78 | 8.15 |
| 5. Marital satisfaction (QMI) ^b | .59** | -.30** | -.43** | .57** | — | -.27** | -.45** | 38.77 | 7.52 |
| 6. Responsibility attributions ^b | -.25** | .48** | .33** | -.18† | -.31** | — | .56** | 27.62 | 10.07 |
| 7. Causal attributions ^b | -.41** | .34** | .50** | -.42** | -.55** | .44** | — | 41.23 | 9.76 |
| M | 37.10 | 26.01 | 40.32 | 36.96 | 37.59 | 28.32 | 41.10 | | |
| SD | 7.12 | 9.63 | 8.71 | 7.50 | 7.20 | 9.55 | 9.40 | | |

Note. Data for husbands appear below the diagonal; data for wives appear above the diagonal. QMI = Quality Marriage Index.

^a Time 1. ^b Time 3.

† $p < .10$. ** $p < .01$.

construct, whereas the QMI was used as a manifest-level measure of marital satisfaction. Second, to examine possible differences in relations between causal and responsibility attributions and marital satisfaction, we estimated a two-wave cross-lagged model in which all variables were treated at the manifest level. This model allowed for the simultaneous estimation of both attribution indices as they related to unique changes in marital satisfaction and vice versa. Building on the results of these analyses, we conducted a third set of analyses using all three waves of data to assess the mediating role of efficacy expectations in accounting for any cross-lagged relations between marital satisfaction and attributions. All modeling was conducted using variance-covariance matrices and LISREL 8.12 (Jöreskog & Sörbom, 1995), based on maximum-likelihood estimation procedures. In estimating omnibus spouse models, we tested all husband and wife differences between specific structural parameters. No significant differences were observed between structural relations across all models tested.

Do Attributions and Marital Satisfaction Influence Each Other Over Time: A Two-Wave Latent Variable Cross-Lagged Analysis

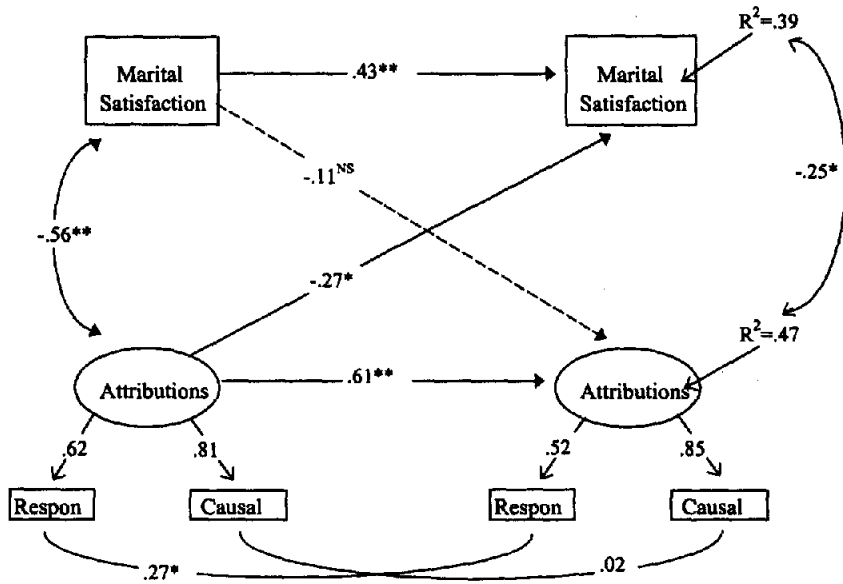
SEM is the technique of choice for analyzing cross-lagged panel correlation designs (Bentler,

1989). Using SEM procedures to analyze data yielded by such designs allows each cross-lagged coefficient to reflect not only the posited causal effects between attributions and marital satisfaction over time but also the stability of the marital satisfaction and attribution constructs over time, the intercorrelations between initial levels of marital satisfaction and attributions, and estimates of both unique and systematic errors contained within the model. Figure 1 shows the results for the test of a latent variable cross-lagged model for both husbands and wives.

With regard to model fit, the chi-square statistics, goodness-of-fit indexes, and associated degrees of freedom suggest that the model provides an excellent fit to the data: for husbands, $\chi^2(3, N = 98) = 1.20, p > .10$, GFI = 1.0, adjusted goodness-of-fit index (AGFI) = 0.97; for wives, $\chi^2(3, N = 98) = 1.02, p > .10$, GFI = 1.0, AGFI = 0.98. As seen in Figure 1, the association between Time 1 marital satisfaction and attributions for partner behavior was strong and significant for both spouses (husbands $r = -.56, p < .01$; wives $r = -.54, p < .01$). The stability effects between levels of marital satisfaction and attributions were also strong and statistically significant for both spouses (husbands $\beta = 0.43$ and 0.61 , respectively, $p < .01$; wives $\beta = 0.50$ and 0.65 , respectively, $p < .01$).

With regard to the cross-lagged parameters,

Husbands



Wives

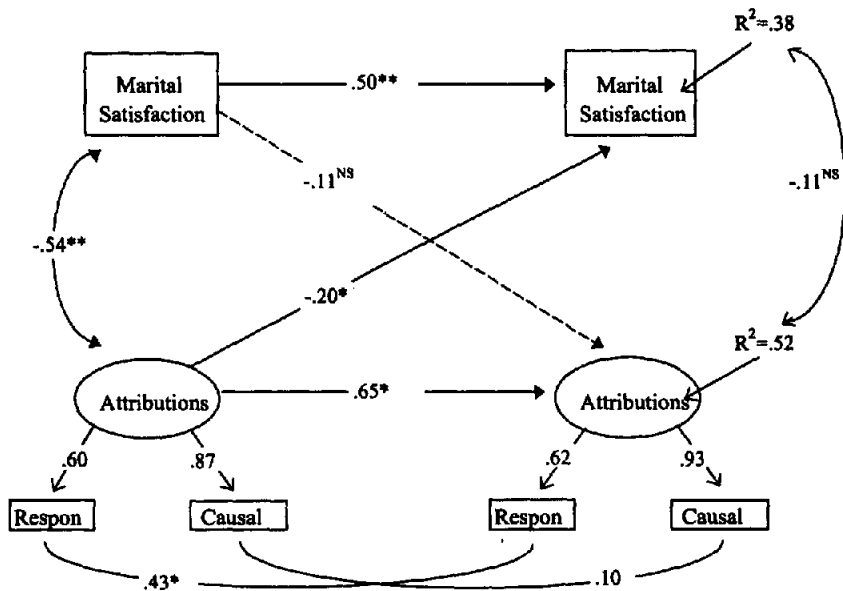


Figure 1. Maximum likelihood estimation of a cross-lagged stability model for husbands and wives showing standardized coefficients. Husbands' $\chi^2(3, N = 98) = 1.20$, goodness-of-fit-index (GFI) = 1.00, adjusted goodness-of-fit-index (AGFI) = 0.97; wives' $\chi^2(3, N = 98) = 1.02$, GFI = 1.00, AGFI = 0.98. Dashed lines indicate control variables. NS = not significant. Respon = responsibility. * $p < .05$. ** $p < .01$.

significant effects were found between earlier measures of attributions for partner behavior and later satisfaction for both spouses (husbands $\beta = -0.27, p < .05$; wives, $\beta = -0.20, p < .10$). It is interesting that no significant parameter estimates emerged for the cross-lagged effects between earlier marital satisfaction and later attributions.

The decision to treat marital satisfaction as a manifest variable is supported by the high reliability coefficients obtained for the QMI (all $\alpha s > .91$) and by previous research, in which it is routinely used as a manifest variable. It could be argued, however, that the cross-lagged effects found were due to more precise measurement of attributions than of marital satisfaction, a concern that appears to be supported by the higher stability coefficients for spouse attributions compared with the stability coefficients for satisfaction. To investigate this possibility further, we conducted a second set of analyses for which we parceled the QMI into two indicators of marital satisfaction. This allowed us to attempt to replicate the above results using a full latent-variable model, removing any potential interpretative problems associated with analyzing latent versus manifest-level variables in the same model.

The fit statistics associated with this model suggested that it once again provided an excellent fit to the data: for husbands, $\chi^2(10, N = 98) = 7.31, p > .10$, GFI = 0.98, AGFI = 0.95; for wives, $\chi^2(10, N = 98) = 3.35, p > .10$, GFI = 0.99, AGFI = 0.97. The stability coefficients linking marital satisfaction and attributions also appeared similar in magnitude and were significant for both spouses (for husbands, $\beta = 0.51$ and 0.63 , respectively, $p < .01$; for wives, $\beta = 0.53$ and 0.65 , respectively, $p < .01$). However, a significant cross-lagged effect was found only in the case of husbands' earlier attributions for partner behavior and later marital satisfaction ($\beta = -0.23, p < .10$; wives' $\beta = -0.12, p > .10$). Loadings for all indicators of each latent variable appeared strong and significant for both spouses (marital satisfaction lambda ranged from .80 to .99; attributions lambda ranged from .51 to .92).

On the basis of results derived from both sets of latent-variable analyses, there appeared to be greater evidence for the impact of attributions on marital satisfaction across time than the converse.⁴ However, careful inspection of specific

measurement parameters associated with the models presented in Figure 1 raised a question about the theoretical use of these results. For all models tested and for both spouses, the indicator loadings associated with RAM-C attributions are consistently higher compared with indicator loadings associated with RAM-R attributions (RAM-C range = .81-.93; RAM-R range = .51-.63; see Figure 1). Along with the presence of significant systematic error variance in the case of responsibility but not causal attributions across time, these results suggest that, whereas both sets of attributions covary significantly, causal attributions appear to be accounting for a greater portion of this covariance in any latent-variable construction. This reinforces the hypothesis that a conceptual distinction may need to be drawn in accounting for any impact of causal and responsibility attributions on levels of marital satisfaction and vice versa, a possibility that we now examine.

Causal Attributions, Responsibility Attributions, and Marital Satisfaction: A Two-Wave Manifest Variable Cross-Lagged Analysis

We tested a theoretical model in which each variable in the model was treated at the manifest level. This allowed us to test the hypothesis that both attribution measures will have covarying yet conceptually distinct effects on levels of reported marital satisfaction across time. Figure 2 contains the results for tests of the proposed model for both husbands and wives.

The variance-covariance matrices used in these analyses were identical to those used to derive the results presented in Figure 1 and appear as correlation coefficients in Table 1. The fit statistics associated with the model presented in Figure 2, for a 1 degree of freedom difference, showed a slight improvement over those presented in the earlier figure: for husbands, $\chi^2(2, N = 98) = 1.08, p > .10$, GFI = 1.0, AGFI = 0.96; for wives, $\chi^2(2, N = 98) = 0.34, p < .10$, GFI = 1.0, AGFI = 1.0. Stability effects between marital satisfaction across waves were strong and significant for both spouses (for husbands, $\beta = 0.50, p < .01$; for

⁴ It is important to note, however, that in further tests of both models, the magnitude of the two cross-lagged coefficients did not differ significantly.

wives, $\beta = 0.53$, $p < .01$). This was also the case for both spouses' reports of responsibility and causal attributions across time (for husbands, $\beta = 0.44$ and 0.38 , respectively, $p < .05$; for wives, $\beta = 0.67$ and 0.67 , respectively, $p < .01$). However, for both attribution measures, the magnitude of each parallel stability measure appeared significantly stronger for wives compared with husbands ($p < .05$).

With regard to cross-lagged parameters, significant effects were found between earlier marital satisfaction and later causal attributions and between earlier causal attributions and later satisfaction (for husbands, $\beta = -0.23$ and -0.20 , respectively, $p < .05$; for wives, $\beta = -0.12$ and -0.19 , respectively, $p < .10$ and $.05$). No significant parameter estimates emerged for cross-lagged effects between responsibility attributions and marital satisfaction for either spouse. Also of interest, when attributions were treated at a covarying yet manifest level, marital satisfaction then appeared to affect causal attributions, but not responsibility attributions, across time. These results contrast with those presented in Figure 1, for which significant cross-lagged effects were found from latent measures of attributions to marital satisfaction for both spouses, but not vice versa. The present results amplify the point raised earlier that a conceptual distinction needs to be made between causal and responsibility attributions. Indeed, by treating causal and responsibility attributions as a latent measure, differences may be observed at a measurement level (see Figure 1) but cause-and-effect relations may be masked at a structural level. In the present model, causal attributions appeared to account for more of any impact on marital satisfaction than do responsibility attributions. On the basis of these results, we completed a final set of analyses to investigate the role of efficacy expectations in mediating the temporal relationship between causal attributions and satisfaction.

Do Efficacy Expectations Mediate the Relationship Between Marital Satisfaction and Causal Attributions?

The significant cross-lagged effects between causal attributions and marital satisfaction allowed us to examine whether efficacy expectations mediate these temporal relations. We did

this by adding Time 2 efficacy expectations to the analyses and by estimating indirect effects from earlier attributions to later satisfaction and from earlier satisfaction to later attributions through this construct while controlling for attributions and satisfaction at Time 2. Controlling for these constructs at Time 2 was necessary to permit conclusions regarding the possible unique role of efficacy expectations in mediating temporal relations between attributions and satisfaction. On the basis of the lack of any significant cross-lagged effects between marital satisfaction and responsibility attributions (see Figure 2), we completed the present analyses for marital satisfaction and causal attributions only.

To assess the mediational role of efficacy expectations, we found it was first necessary to assess whether direct effects linked Time 1 and Time 3 marital satisfaction and causal attributions while controlling for these measures at Time 2. These analyses replicated three of the four direct effects reported in Figure 2 ($p < .05$). The direct effect between wives' marital satisfaction and causal attributions appeared nonsignificant in the present analyses ($p > .10$). Results for both spouse models are presented in Figure 3.

The model presented in Figure 3 contains all significant paths linking Time 1 to Time 3 marital satisfaction and causal attributions through efficacy expectations. Stability coefficients for marital satisfaction (for husbands, $\beta = 0.80$ and 0.74 , respectively; for wives, $\beta = 0.78$ and 0.51 , respectively) and attributions (for husbands, $\beta = 0.58$ and 0.46 , respectively; for wives, $\beta = 0.72$ and 0.67 , respectively) were significant for both spouses ($p < .01$). When the proposed mediator was introduced at Time 2, significant effects were found between earlier satisfaction and later causal attributions through efficacy expectations for wives but not for husbands (for wives, $\beta = 0.54$ and -0.18 , $p < .01$ and $.05$, respectively; for husbands $\beta = 0.40$ and -0.02 , $p < .01$ and $p > .10$, respectively). Significant direct effects were found between earlier attributions and later satisfaction through efficacy expectations for both spouses (for wives, $\beta = -0.18$ and 0.25 , respectively, $p < .05$; for husbands, $\beta = -0.17$ and 0.15 , respectively, $p < .05$). All indirect effects were statistically significant ($p < .10$). We also esti-

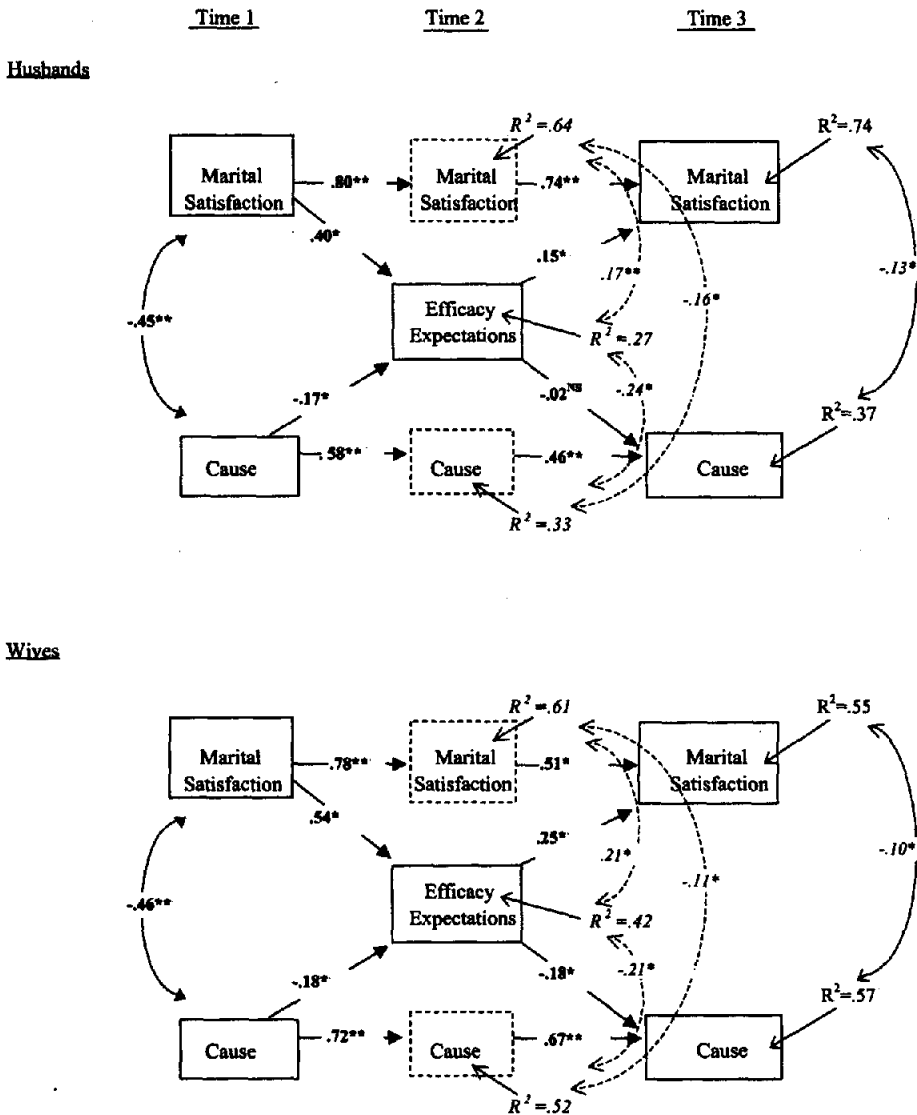


Figure 3. Maximum likelihood estimation of an efficacy expectation mediating model for husbands and wives. Husbands' $\chi^2(6, N = 98) = 14.02$, goodness-of-fit-index (GFI) = 0.96, adjusted goodness-of-fit-index (AGFI) = 0.85; wives' $\chi^2(6, N = 98) = 16.84$, GFI = 0.96, AGFI = 0.85. Dashed lines indicate control variables. NS = not significant. * significant husband-wife parameter difference. * $p < .05$. ** $p < .01$.

mated direct cross-lagged paths from each Time 1 measure to each Time 3 measure in the present analyses (for the purpose of presentation, these paths are not shown in Figure 3). Central to providing support for any complete mediational hypothesis is the fact that effects between attributions and marital satisfaction were not statistically significant for both

spouses when estimated in the presence of efficacy expectations (attributions to satisfaction for wives, $\beta = -0.07$; for husbands, $\beta = -0.08$). The initial cross-lagged effect between husbands marital satisfaction and attributions remained statistically significant in the presence of efficacy expectations ($\beta = -0.27, p < .05$). All derived fit statistics suggest that both

models provide an adequate fit to the data: for husbands, $\chi^2(6, N = 98) = 14.02, p < .05$, GFI = 0.96, AGFI = 0.86; for wives, $\chi^2(6, N = 98) = 16.84, p < .05$, GFI = 0.96, AGFI = 0.85. However, because these analyses simply control for Time 2 attributions and satisfaction in testing the mediating role of efficacy expectations, all associated fit statistics should be regarded as somewhat artifactual. Derived parameter results, however, suggest that the effects between earlier causal attributions and marital satisfaction are fully mediated for both spouses. Conversely, when effects between earlier satisfaction and attributions were assessed, a significant indirect effect through efficacy expectations existed for wives, whereas for husbands earlier marital satisfaction influenced later causal attributions above and beyond efficacy expectations.

The decision to examine efficacy expectations as a mediator of the association between causal attributions and marital satisfaction was based on the theoretical arguments outlined in the introduction. Although it is not a trivial accomplishment to show that this theoretical model fit the data, our findings do not rule out alternative models of the relations among the constructs. Accordingly, we examined one such alternative model. It could be argued that attributions mediate the relation between efficacy expectations and marital satisfaction, and, hence, we tested this possibility. However, direct effects from earlier efficacy (Time 1) to later satisfaction (Time 3) and earlier satisfaction to later efficacy remained significant when causal attributions (Time 2) served as a mediator (while controlling for Time 2 efficacy and satisfaction) for both spouse models. Thus, no evidence was obtained to support attributions as a mediator of the efficacy-satisfaction relationship.

Discussion

Rationale, Summary, and Limitations

This study attempted to document a longitudinal association between attributions and marital satisfaction, determine the direction of possible causal effects between these two variables, and test whether any relation between them was mediated by efficacy expectations. Our findings replicated those of numerous earlier studies in which an inverse relation was found between attributions that accentuate the impact of nega-

tive partner behavior and marital satisfaction. We also addressed the distinction drawn between causal and responsibility attributions and showed that despite their high empirical association these two types of attributions did not yield the same pattern of significant findings. When modeled as separate manifest variables, only causal attributions were temporally related to marital satisfaction.

The documentation of a robust association between attributions and marital satisfaction raises questions about the possible direction of effects, if any, between these two variables. Although this question of causality has received considerable attention in theoretical and applied writings, attempts to address it empirically have been infrequent. Moreover, data pertaining to this question reflect important methodological and data-analytic limitations. Chief among these is the use of samples recruited through advertisements, which makes it difficult to determine the population from which the sample is drawn and hence limits generalizations that can be made from the study. The sampling of established, relatively stable marriages in two of the three marital studies (7.3 and 9.9 years of marriage, respectively, for Fincham & Bradbury, 1987c, and Fincham & Bradbury, 1993) may also lead to underestimates of the longitudinal relations between attributions and marital satisfaction. In addition, the exclusive use of ordinary least squares regression analyses limits the examination of possible bidirectional effects and yields results that are confounded by measurement error.

The present study addressed many of these limitations and examined the possible direction of effects between attributions and satisfaction using couples drawn from marriage licence records. Slightly different results emerged when causal and responsibility attributions were treated as indicators of a latent attribution construct and when they were treated as separate manifest variables. A cross-lagged, stability model showed that the path between a latent construct of earlier attributions and later satisfaction was significant for both husbands and wives, whereas the path from earlier satisfaction to later attributions was not significant. This pattern of findings, which is consistent with the majority of results from prior studies, suggests that attributions influence marital satisfaction but not vice versa. However, causal attributions

showed higher indicators loadings, and when causal and responsibility attributions were examined separately the pattern of findings varied. Specifically, the path from earlier satisfaction to later causal attributions was found to be significant. This result is consistent with a finding from one of the two prior studies that have examined the impact of earlier satisfaction on later attributions and suggests that the direction of effects between causal attributions and marital satisfaction may be reciprocal. Also, no significant cross-lags were found for responsibility attributions. The failure to find effects for responsibility attributions does not appear to replicate prior findings. However, prior research has not examined causal and responsibility attributions simultaneously, and hence the present findings provide a more complete picture of the longitudinal relations between these two types of attributions and marital satisfaction.

The present study extends the findings of previous research in several ways. First, it shows a longitudinal relation between attributions and satisfaction that extended beyond the 12-month period investigated in prior marital studies. The documentation of this relation over a second, arbitrarily chosen time period that may not reflect the true causal lag between the variables suggests that the association may be quite robust. Second, it allows greater confidence in inferring possible temporal effects between attributions and satisfaction because the cross-lagged stability model takes into account all relations in the hypothesized system when estimating this longitudinal relation. Third, it demonstrates the importance of how attributions are conceptualized for investigating the longitudinal relation between attributions and marital satisfaction. Fourth, it shows that concurrent and longitudinal relations between attributions and marital satisfaction occur when the latter is measured using global evaluations of the marriage. This is important in view of critiques of traditional measures of marital satisfaction (e.g., Fincham, Beach, & Kemp-Fincham, 1997; Norton, 1983).

In addition to documenting the effect of attributions on satisfaction, our findings also speak to one of the mechanisms that might account for this association. Specifically, our results are consistent with the view that causal attributions are linked to satisfaction because of their hypothesized effect on efficacy expecta-

tions, which, in turn, may affect marital satisfaction. In other words, efficacy expectations mediated the effects of attributions on later marital satisfaction. In considering the effects of marital satisfaction on attributions, a significant indirect effect (not a mediational effect) was found through efficacy expectations for wives but not for husbands. For husbands, earlier levels of marital satisfaction influenced attributions above and beyond the influence of efficacy expectations. It should be noted, however, that we did not assess attributions for conflict behavior but instead used a more general measure of attributions for negative spouse behavior. This disparity between the referent for the attribution- and efficacy-expectations assessments is a limitation of the study as it does not follow directly from theoretical analyses of conflict among intimates (e.g., Doherty, 1981a, 1981b; Fincham & Bradbury, 1987b) and should mitigate against finding the predicted relations among attributions, efficacy, and satisfaction. The fact that the predicted results were obtained suggests that associations among these variables may be particularly robust.

Caution is necessary when interpreting these results for two other reasons. First, the available sample size approached the lower limit normally recommended for SEM analyses. However, for all three models the parameter-to-*N* ratio ranged between 5 and 7 participants. This meets criteria recommended separately by Bollen (1989) and Bentler (1992) that there should be a minimum of 5 participants per parameter estimated. Second, there is the temptation in using structural equation methods to overstate the inferences that can be drawn about the causal priority of variables when considering data from panel studies (Kessler & Greenberg, 1981). As Kenny (1979) reminded us, the logic informing panel designs like the one used in the present study is that of the quasiexperiment in which the focus is on spuriousness or ruling out alternative explanations for causal effects. No amount of sophisticated causal modeling establishes the existence of causal effects; rather the basis for inferring such effects rests on the assumptions we make in analyzing what are, in essence, correlational data.

Implications for Theory and Research

Demonstrating effects from attributions to satisfaction supports the attention given to this

direction of effects in models of marriage and other close relationships (e.g., Baucom & Epstein, 1990; Bradbury & Fincham, 1990; Rusbult, Johnson, & Morrow, 1986; Weiss, 1984). Equally important, however, is the evidence for effects from satisfaction to causal attributions as some theoretical statements (e.g., Bradbury & Fincham, 1987, 1990; Heider, 1958) posit such effects. This latter result provides an important reminder of the potential role of relationship satisfaction in influencing attributions, an influence that tends to have received limited attention relative to the possible influence of attributions on satisfaction. Taken together with a prior finding showing that earlier causal attributions predicted men's later satisfaction (Fincham & Bradbury, 1993), the present study suggests that the direction of effects between causal attributions and marital satisfaction is bidirectional.

The theoretical importance of these findings is also emphasized by the widespread belief among marital researchers that spouses respond to questions about the partner and the marriage simply in terms of their dominant sentiment about the relationship rather than in terms of the specific question asked. In fact, Weiss (1980) coined the term *sentiment override* to refer to this proposed phenomenon, and it has been widely used to explain spouse judgments and behaviors. In its strongest form, the sentiment override hypothesis poses a threat to the validity of self-report studies on marriage. Specifically, if dimensions of marriage assessed through self-report simply reflect level of satisfaction, they will therefore necessarily be correlated if the range of marital satisfaction sampled is not restricted. Although used for interpreting research findings, there are little data on the sentiment override hypothesis. The present findings challenge the view that marital satisfaction is the dominant construct that drives responses on other self-report measures. Instead, the results of the cross-lagged model suggest that satisfaction is itself determined, in part, by at least one other self-reported construct, namely, attributions.

A third important theoretical implication of the study concerns the distinction between causal and responsibility attributions. Prior theorists have drawn this distinction primarily on rational grounds. Although there are some data to support the distinction in the marital literature (e.g., Fincham & Bradbury, 1992), demonstra-

tion of empirical differences between the two types of attributions in this literature is limited. This circumstance, together with the robust association typically found between the two types of attributions, has led to exploration of causal and responsibility attributions as indicators of a latent, attribution construct (Karney et al., 1994). A model that included a single, latent attribution construct was therefore examined, as was a model that treated causal and responsibility attributions as manifest variables. How attributions were conceptualized turned out to be important because a relation between earlier satisfaction and later attributions emerged only when attributions were treated as separate, manifest variables. In any event, the finding of differential temporal relations with marital satisfaction provides further empirical support for distinguishing between causal and responsibility attributions.

The documentation of effects between causal attributions and satisfaction over time raises the question of how these effects occur and what mechanisms might be involved in their production. As noted earlier, the one possibility discussed to date is that attribution effects are mediated through their impact on spouse behavior, a perspective that is consistent with correlational (e.g., Bradbury & Fincham, 1992; Miller & Bradbury, 1995; Bradbury et al., 1996) and experimental evidence (Fincham & Bradbury, 1988) relating attributions to behavior. Briefly stated, attributions that maximize the impact of negative partner behavior are posited to lead to the reciprocation of such behavior and to negative behavior exchanges that erode marital satisfaction (see Bradbury & Fincham, 1990). This theoretical perspective calls for research that includes examination of attributions, behavior, and marital satisfaction.

It can be argued, however, that this account is incomplete. Specifically, negative behavioral exchanges are unlikely to have direct effects on marital satisfaction. Rather, they create expectancies for future interactions that, when generalized, influence marital satisfaction. Although the expectancies are no doubt influenced by attributions for behaviors in negative exchanges and for the exchanges themselves, it is through expectancies that satisfaction is affected. Drawing on Doherty's (1981a, 1981b) analysis of conflict between

intimates, we examined one type of generalized expectancy that is likely to be particularly important for understanding marital satisfaction: perceived efficacy for resolving marital conflicts. The identification of efficacy expectations as a variable that mediates the attribution-satisfaction association points to the need to expand models of close relationships to more fully incorporate efficacy expectations and supports Baucom, Epstein, Sayers, and Sher's (1989) identification of expectancies as one of five domains of cognitive content important for understanding marriage.

However, there are likely to be limitations to the mediating role of efficacy expectations identified in this study. Attributions may influence marital satisfaction directly under certain conditions. For example, attributions for some extreme negative spouse behaviors (e.g., marital violence or an affair) may influence satisfaction independently of their implications for expectancies of future behavior. Such effects seem most likely for unexpected behaviors that spouses consider to be serious violations of relationship rules. In any event, future research is needed to examine the conditions under which attributions might influence satisfaction directly and to determine the conditions under which different mechanisms might account for the attributions-satisfaction relationship. Finally, it is important to note that, whereas our data are consistent with efficacy expectations playing a mediating role in the association between attributions and satisfaction, they do not rule out alternative, plausible models.

Implications for Application and Public Policy

At the applied level, the current findings are not entirely consistent with the attention given to attributions in clinical writings and may help account for the failure to find any improvement in treatment outcome over standard therapy interventions when attributional changes are specifically targeted in the intervention (e.g., Baucom & Lester, 1986; Baucom et al., 1990). Several factors were identified earlier that might account for these null findings, including the weakness of the attribution interventions, absence of manipulation checks, and the limited power of the studies to detect treatment differences. In addition, the standard interventions

they have supplemented are skill based and therefore implicitly address spouse attributions for negative partner behavior by implying that such behavior is due to a skill deficit and that by improving communication skills they allow spouses to explore a variety of attributions for problematic behaviors. The present findings, however, raise the further possibility that attributions may not be the best cognitive target for therapeutic intervention designed to increase marital satisfaction. This is because efficacy expectations for resolving marital conflict may be a more proximal influence on satisfaction and because attributions account for only a limited portion of the variance in efficacy expectations. Shifting the focus from attributions to efficacy expectations is consistent with the claim that consideration of expectancies comprises "much of what occurs in good marital therapy" (O'Leary & Turkewitz, 1978, p. 219).

Conclusion

In the absence of strong empirical evidence, models of close relationships have accorded attributions a central role in determining relationship quality and have paid little attention to the possibility that marital quality shapes attributions. The present study was the first to examine in a single model potential bidirectional effects between attributions and marital satisfaction, and it addressed this important set of theoretical assumptions by providing data consistent with the view that the direction of effects between causal attributions and satisfaction is reciprocal. In doing so, it provided further data to support the distinction between causal and responsibility attributions. It also addressed the mechanism through which causal attributions and satisfaction are related and showed that efficacy expectations mediate the relation. Finally, in testing the direction of possible causal effects between attributions and marital satisfaction and what might mediate them, these data add to the small number of longitudinal studies on marriage that use structural equation modeling (7 out of 115 studies; Karney & Bradbury, 1995). Future studies are needed that (a) include multiple waves of data collected over different time periods to provide a more complete examination of effects between attributions and satisfaction over time and to identify the optimal lag over which influences might occur between the two variables, (b) examine the boundary

conditions within which efficacy expectations mediate the effects of attributions on satisfaction, and (c) examine other potential mediators and moderators of the attribution-satisfaction association.

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