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Attributions in Marriage: Examining the Entailment Model in Dyadic Context

Adam Davey
University of Georgia

Frank D. Fincham
University at Buffalo,
State University of New York

Steven R. H. Beach and Gene H. Brody
University of Georgia

The entailment model of attributions is examined for the first time using a dyadic approach and longitudinal data. In a sample of 229 married partners with children, causal attributions were distinguished empirically from responsibility attributions and, consistent with the entailment model, the effect of causal attributions on conflict was mediated through attributions of responsibility. Only 1 path was influenced by spouse gender. Examination of cross-spouse effects revealed significant effects and provided a better fit than a model with no cross-spouse effects. The importance of including cross-spouse effects in attributional models is discussed.

A substantial literature documents the role of attributions in marriage (for reviews, see Bradbury & Fincham, 1990; Epstein & Baucom, 1993; Fincham, 1998). It is now known, for example, both that there is an association between the attributions a spouse makes for marital events and the couple's marital satisfaction and that this association is not a by-product of spousal depression (Bauserman, Arias, & Craighead, 1995), anger (Senchak & Leonard, 1993), general negative affectivity (Karney, Bradbury, Fincham, & Sullivan, 1994), or marital violence (Fincham, Bradbury, Arias, Byrne, & Karney, 1997). What has continued to stimulate interest in marital attributions, however, are data suggesting that this association may initiate or maintain marital distress (e.g., Fincham, Harold, Gano-Phillips, 2000; Karney & Bradbury, 2000) and may influence spouse behavior (e.g., Bradbury, Beach, Fincham & Nelson, 1996; Bradbury & Fincham, 1992). Notwithstanding these achievements, fundamental questions remain about the types of attributions investigated, their relation to each other, possible gender differences in attributional processes, and the intra- versus interindividual effects of attributions. Our study therefore examines each of these issues.

The attribution hypothesis specifies that spouses who make attributions that accentuate the impact of negative marital events and minimize the impact of positive events will be more distressed. This hypothesis has been supported for attributions concerning who or what caused the event (causal attributions) and who is accountable, and therefore liable to sanction, for

Adam Davey, Department of Child and Family Development and Faculty of Gerontology, University of Georgia; Frank D. Fincham, Department of Psychology, University at Buffalo, State University of New York; Steven R. H. Beach, Department of Psychology, University of Georgia; Gene H. Brody, Department of Child and Family Development and Institute for Behavioral Research, University of Georgia.

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Correspondence concerning this article should be addressed to Adam Davey, Department of Child and Family Development, 210 McPhaul Center, University of Georgia, Athens, Georgia 30602-3623. Electronic mail may be sent to adavey@spock.fcs.uga.edu.

the event (responsibility attributions; Fincham, 1998). Thus, for example, explanations for a negative event (e.g., partner comes home late from work) tend to be conflict promoting among distressed spouses (e.g., cause: "he didn't keep track of the time again"; responsibility: "she only thinks about herself and her needs") and relationship promoting among nondistressed spouses (e.g., cause: "he got a last minute work assignment"; responsibility: "she works hard to provide for us"). The characteristics of the causal attribution (cause is located in the partner, is global or influential in other areas of the marriage, and is stable or likely to be present in the future) and of the responsibility attribution (behavior is seen to reflect selfish motivation, negative intent, and to be blameworthy) offered by the distressed spouse are likely to promote conflict in that the partner is likely to be called to account for his or her behavior upon arriving at home.

The attribution hypothesis outlined above incorporates the theoretical distinction between causal and responsibility attributions that is pervasive in the marital attribution literature (see Fincham, 2001). Yet the empirical basis for distinguishing these two types of attributions remains tenuous. Fincham and Bradbury (1992) showed that, in contrast to a single factor model, a two-factor model fit ratings of causal and responsibility attributions dimensions. However, this result has not yet been replicated and, in any event, pertained to data that averaged responses across spouses. Most marital attribution research has investigated attributions within spouses, and it is at this level that the distinction between causal and responsibility attributions awaits documentation. The empirical basis for distinguishing causal from responsibility attributions is particularly important to address because some studies combine these two attribution types to examine a single attribution construct (e.g., Karney et al., 1994). Although reliably related to marital satisfaction, the precise manner in which causal and responsibility attributions relate to each other and to marital outcomes has received limited empirical attention.

At the theoretical level, however, an entailment relation between these two types of attribution has been clearly specified (e.g., Bradbury & Fincham, 1990). According to the entailment model, responsibility attributions presuppose or entail causal attributions. Thus, one can hypothesize a sequence in which causal attributions lead to responsibility attributions which, in turn, lead to marital outcomes (i.e., causal attributions → responsibility attributions → marital outcome). The hypothesized entailment relation between causal and responsibility attributions has not entirely escaped empirical examination. For example, Lussier, Sabourin, and Wright (1993) found strong support for this relationship among 206 cohabiting couples when they made attributions for relationship conflict. Unfortunately, this study used single item measures of causal and responsibility attributions, and whether the entailment relationship will emerge when attributions are more reliably measured is unclear.

The question of attribution measurement is not only important in its own right, but also because it raises an alternative explanation for previously observed gender differences in the relation between attributions and observed behavior. Although a robust association exists between attributions and spouse behavior, spouse gender has been associated with effect size in that the association is larger for women (mean effect size = .45) than for men (mean effect size = .23; Fincham, 2001). Although this gender difference might reflect the general observation that attributions are more important for the less powerful person in a relationship (Heider, 1958), an alternative explanation is that the constructs of attributions and behavior differ for men and women. Our study investigated this possibility by testing the factorial invariance of construct measurement across men and women. A third, more parsimonious explanation for gender differences concerns unreliability of measurement. If measures of attributions or behavior are differentially reliable between men and women, then the association among observed scores may appear to differ even when the relation between true scores is identical for men and women. Accordingly, we examined relations among causal attributions, responsibility attributions, and reported conflict, and we assessed possible gender differences in the constructs of attributions and behavior and their measurement.

A final, relatively unexplored issue in marital attribution research concerns the potential im-

portance of examining attributions at a dyadic level that includes not only intraspouse effects but also interspouse effects. It has been commonplace in marital attribution research to focus on what happens within the individual and, by implication, to relegate interspouse effects to a secondary conceptual status. As a result, attributional research has not yet realized its potential to contribute to an understanding of the interdependence that exists between partners (see Kelley et al., 1983). For instance, a spouse's attributions for partner behavior might influence the partner's report of conflict because the spouse's attributions influence his or her behavior toward the partner. The relative lack of attention to cross-spouse effects may also have resulted in a misleading or, at best, incomplete picture of attributions in marriage. For example, an entailment relation for attributions and marital outcomes at the intraindividual level may disappear or be shown to result from the effects of the partner's attributions when examined in a dyadic context. Examination of both intra- and interspouse effects in marital attribution research is therefore long overdue.

The issue of intra- versus interspouse effects has been examined rarely. An exception is a study by Karney et al. (1994) that included husband and wife attributions in a single model that examined the impact of attributions and negative affectivity on participants' and participants' partners' marital satisfaction. They found some evidence of cross-spouse effects in that husbands' attributions were related to wife satisfaction independently of wives' attributions or of either spouses' negative affectivity. However, this study did not examine causal and responsibility attributions separately and did not examine the relative merits of intra- versus interspouse models. The lack of attention to the dyadic level of analysis is important because it is at this level of analysis that relationship phenomena are likely to emerge. The lack of attention to the dyad is not unique to attribution research. Surprisingly, little attention has been paid to dyadic processes in the broader literature on close relationships (Berscheid & Reis, 1998). An important goal of our study is therefore to examine the utility of analyzing the effects of attributions at the level of the dyad.

In sum, considerable progress has been made in research on marital attributions but fundamental questions remain about (a) the empirical basis for distinguishing causal from responsibility attributions, (b) the entailment relations hypothesized among attributions and marital outcomes, (c) possible gender differences in attributions, and (d) the role of interspouse effects in understanding attributional processes in marriage. Mindful of the increasing emphasis on longitudinal research in the marital domain (Bradbury, 1998), we incorporate a temporal dimension to strengthen our attempt to address these issues. This provides a more powerful test of the entailment model. Accordingly, the present study investigates the following questions:

1. (a) Are causal attributions distinct from responsibility attributions? If so,
   (b) Is there an entailment relation between causal and responsibility attributions such that the effects of causal attributions on marital outcomes is fully mediated through responsibility attributions?
2. (a) Are gender differences in the associations found for marital attributions caused by gender differences in the constructs investigated?
   (b) Are there gender differences in the relations among constructs when they are investigated independently of measurement error?
3. (a) Are cross-spouse effects important in accounting for variance in attributional processes?
   (b) Does analysis at the dyadic level support or disconfirm current theoretical models of attributional processes (e.g., the entailment model) in marriage?

Method

Sample

Two hundred thirty-two families across northern and middle rural Georgia participated in the first waves of this project (the Adolescent Development Research Program described in Brody, Flor, Hollett-Wright, & McCoy, 1998). The requirements for participation mandated that families were intact and had an 11- or 12-year-old adolescent in the home. A telephone-directory-based random sampling strategy aimed at contacting households that included at least one child between 10 and 15 years of age was used to recruit families. Letters were sent to these households to acquaint the families with the purposes of the

study and to inform them that they would be contacted by a staff member to determine their eligibility and willingness to participate. All of the White families and approximately half of the Black families were recruited as described above. In addition to the random sampling of Black families, a more purposive sampling strategy was used. During the summer of 1994, leaders (e.g., ministers, social workers) in rural Georgia communities were solicited to help identify families who might be eligible for, and interested in, our study. Also, the Black families who had agreed to participate in our study were asked to provide names of friends and acquaintances who met the criteria and could be contacted by one of our staff members to determine their willingness to participate. Thirty of the 54 Black families who participated in Wave 1 of the study were contacted in this way. Participants in our study were 229 married couples with complete data on study variables at Wave 1. Additionally, 168 couples provided follow-up data approximately 1 year later. Husbands (76.0% White) had a mean age of 41.2 years. Only about 9% of the sample had less than a high school education, 54.6% had completed high school or some college, and 36.7% had completed college or earned advanced degrees. Wives (75.3% White) had a mean age of 38.6 years. Again, only 3.9% of wives had less than a college education, 64.9% had graduated high school or some college, and 31.2% had completed college or earned advanced degrees. Median family income was $46,799. Couples had an average of 2.4 children.

Direct comparison of our sample against existing census figures to assess representativeness is not possible, because characteristics of couples in stable marriages with adolescent children are not presented in census tables. However, by virtue of the fact that they agreed to participate in this longitudinal study, study participants were likely to be slightly more advantaged, in terms of income and education, than the general population. Looking longitudinally, nonresponse at Time 2 was predicted using logistic regression models using participants' Time 1 characteristics. Blacks were more likely than Whites to drop out of the study by Time 2. Individuals with initially higher scores on the Destructive Arguing Inventory (DAI; Kurdek, 1994) were less likely to drop out of the study. No other study variables were associated with nonresponse. As a result, we compared Whites and Blacks on all study variables. No differences on any variables were found. Thus, our cross-sectional findings appear to be fairly representative of the population from which they were drawn. Likewise, whereas nonresponse at Time 2 is systematic in our sample, these processes do not appear to have impaired the generalizability of our findings.

Measures

Attributions. Attributions were measured using the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992). Causal attributions are measured using three scales (Locus, Globality, Stability) and responsibility attributions are measured by three scales (Selfishness, Intentionality, Blameworthiness). In our study the Wave 1 internal consistencies (coefficient alpha) for the three scales of Locus, Globality, and Stability were .75, .84, and .80, respectively, for husbands, and .71, .83, and .86 for wives. (For Wave 2 internal consistencies were, in the same order, .82, .90, .89, .84, .89, and .86.) Likewise Wave 1 alphas for Selfishness, Intentionality, and Blameworthiness were .89, .79, and .88, respectively, for husbands, and .89, .82, and .86 for wives. (For Wave 2, alphas were, in the same order, .83, .75, .88, .80, .77, and .87.) The dimensions were scored so that higher values indicated more conflict-promoting attributions. Descriptive statistics and correlations among causal attribution indicators are presented in Table 1. Descriptive statistics and correlations among responsibility attribution indicators are presented in Table 2.

Table 1
Descriptive Statistics for Causal Attributions

	Husbands					Wives				
Variable	Locus	Stability	Globality	*M*	*SD*	Locus	Stability	Globality	*M*	*SD*
Locus 1	—	.36	.53	13.0	3.3	—	.51	.65	14.2	3.9
Stability 1	.52	—	.50	10.9	3.4	.42	—	.55	11.4	4.0
Globality 1	.57	.57	—	11.9	3.8	.51	.52	—	13.0	4.5
Locus 2	.52	.24	.43	15.5	4.1	.43	.36	.43	16.3	3.8
Stability 2	.30	.40	.34	12.4	4.2	.30	.63	.33	12.5	3.9
Globality 2	.36	.30	.60	14.0	4.7	.42	.38	.65	13.9	4.2

Note. Correlations above the diagonal are between Time 2 measures. All correlations are significant at $\alpha = .01$. Time 1 correlations are based on data from 229 couples; longitudinal and Time 2 correlations are based on data from 168 couples.

Table 2
Descriptive Statistics for Responsibility Attributions

Variable	Husbands					Wives				
	Intent	Selfish	Blame	*M*	*SD*	Intent	Selfish	Blame	*M*	*SD*
Intentionality 1 –	—	.79	.69	11.5	3.5	—	.83	.68	11.2	4.0
Selfishness 1	.73	—	.75	10.6	3.9	.81	—	.71	11.5	4.5
Blameworthy 1	.59	.73	—	10.2	3.5	.66	.77	—	11.8	4.2
Intentionality 2	.56	.56	.47	12.7	4.5	.64	.58	.41	12.1	4.0
Selfishness 2	.44	.61	.49	11.5	4.4	.61	.67	.46	12.5	4.4
Blameworthy 2	.31	.43	.58	11.3	4.0	.55	.58	.55	12.8	4.0

Note. Correlations above the diagonal are between Time 2 measures. All correlations are significant at $\alpha = .01$. Time 1 correlations are based on data from 229 couples; longitudinal and Time 2 correlations are based on data from 168 couples.

Reported conflict. Wave 1 conflict reports were measured with three commonly used scales. The DAI is an 8-item scale asking individuals to rate styles of conflict and conflict resolution within the marriage. All items are rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating more destructive arguing styles. In the present context, the DAI had Wave 1 internal consistencies of .81 and .84 for husbands and wives, respectively; values for Wave 2 were .82 and .82, respectively. The Marital Adjustment Test (MAT; Locke & Wallace, 1959) is a 15-item scale that includes questions about the extent of spouse agreement across a variety of situations, such as handling money and social and recreational activities. All ratings are made on a 6-point scale ranging from 1 (*always agree*) to 6 (*always disagree*). Because of our interest in the construct of conflict within marriage, we included only Items 2–9, which ask about marital disagreements. Internal consistencies for husbands and wives were estimated as .84 and .80, respectively, at Wave 1 and .86 and .84, respectively, at Wave 2. The third measure of reported conflict was the O'Leary–Porter Scale (OPS; Porter & O'Leary, 1980), which asks about marital discord. This scale consists of 10 items rated on a 5-point scale, ranging from 0 (*never*) to 4 (*very often*). Items assess the extent to which spouses differ in domains such as child discipline, displays of affection, and complaints about each other. With the present sample, the OPS had internal consistencies of .77 and .82 for husbands and wives, respectively, at Wave 1, and .83 and .82, respectively, at Wave 2. Descriptive statistics and correlations among marital conflict items are presented in Table 3.

Procedure

Home visits were made to each family by teams of two research assistants who had received 4 weeks of training in administering the procedures used in the study. During the first home visit, parents consented to their own and to their children's participation in the study, and the children also consented to their own participation.

At each home visit, questionnaires were separately administered to each parent and child, with no other

Table 3
Descriptive Statistics for Marital Conflict

Variable	Husbands					Wives				
	MAT	DAI	OPS	*M*	*SD*	MAT	DAI	OPS	*M*	*SD*
MAT 1	—	.43	.23	18.6	5.2	—	.37	.30	18.3	4.6
DAI 1	.44	—	.34	19.2	4.5	.61	—	.50	19.5	5.0
OPS 1	.46	.50	—	10.3	4.7	.53	.58	—	10.8	5.2
MAT 2	.34	.25	.28	20.1	5.7	.46	.33	.29	19.7	5.8
DAI 2	.46	.68	.40	19.2	4.6	.53	.64	.50	19.1	5.9
OPS 2	.37	.34	.67	10.0	5.2	.53	.42	.58	10.8	8.0

Note. Correlations above the diagonal are between Time 2 measures. All correlations are significant at $\alpha = .01$. Time 1 correlations are based on data from 229 couples; longitudinal and Time 2 correlations are based on data from 168 couples. MAT = Marital Adjustment Test; DAI = Destructive Arguing Inventory; OPS = O'Leary–Porter Scale.

family members present. These instruments were presented to each respondent on a laptop computer. Items were presented one at a time on the computer screen, and family members entered their response selections on keypads with large numerals. If a family member could not read, which was the case for fewer than 10% of the participants, the research assistant presented the questionnaires orally. In this case, when responses to a Likert-type scale were required, the family member was shown a card with a numbered series of dots in graduated sizes corresponding to the magnitude of the responses from which he or she was to choose; the respondent was then asked to enter on the computer the number beside the dot on the card. A cardboard partition prevented the research assistant from seeing any respondent's answers.

Results

The results are presented in terms of the three questions posed earlier. Nested model comparisons are made whenever possible and are indicated as the change in chi-square ($\Delta\chi^2$), which is consistent with recommended practice in structural equation modeling (e.g., Bollen, 1989). Throughout this article, $N = 229$ for chi-square analyses. For the sake of brevity, we report analyses for only the most stringent tests of each research question: We use cross-sectional data from Wave 1 (with the largest sample size) to test whether causal and responsibility attributions are distinct, and we use longitudinal data for all other tests. To make use of all available observations, we used full information maximum likelihood methods, as implemented through AMOS (Arbuckle, 1997) computer software, to estimate all models.

The Relations Among Causal Attributions, Responsibility Attributions, and Marital Conflict

Before examining a possible entailment relation among causal attributions, responsibility attributions, and reported conflict, we must show that participants distinguished between these two types of attribution.

Are causal attributions distinct from responsibility attributions? To address this question, a series of models was fit to the data. We began by testing separate two-factor models to the attribution data for husbands and wives separately. For both husbands and wives, the two-factor model provided a good fit: for husbands, $\chi^2(8) = 23.9$, $p < .01$, goodness-of-fit index (GFI) = .97, .05 ≤ root-mean-square error of approximation (RMSEA) ≤ .14, Tucker-Lewis index (TLI) = .96; for wives, $\chi^2(8) = 26.8$, $p < .01$, GFI = .96, .06 ≤ RMSEA ≤ .14, TLI = .95. However, causal and responsibility attributions were highly intercorrelated (correlations among latent causal and responsibility attributions, from which measurement error has been removed, were .85 and .89 for husbands and wives, respectively). In light of the strong relation between these two latent constructs, we also fit a single-factor model to husbands' and wives' data separately. For both husbands and wives, this resulted in a large deterioration in model fit: for husbands, $\Delta\chi^2(1) = 25.3$, $p < .001$; for wives, $\Delta\chi^2(1) = 11.9$, $p < .001$. Although strongly associated, attributions about causality and responsibility are distinct constructs that can be analyzed separately.

Are the effects of causal attributions fully mediated through responsibility attributions? An entailment model of causal attributions, responsibility attributions, and reported conflict was simultaneously fit for husbands and wives, in which all latent constructs were permitted to freely interrelate (see Figure 1). The autocorrelations between corresponding residuals of husbands' and wives' reports of conflict are similar to the predictions of the longitudinal factor model (e.g., Marsh & Grayson, 1994) and reflect the nonindependence of husbands' and wives' ratings of their shared marriage. All residuals were independent across spouses for both causal and responsibility attributions. Correlations among the latent variables are shown in Table 4. Causal attributions were measured at Wave 1, and both responsibility attributions and conflict were measured at Wave 2. The model shown in Figure 1 provided an excellent fit to the data, $\chi^2(117) = 119.05$, *ns*, normed fit index (NFI) = .92, TLI = 1.00, RMSEA = .01. Constraining factor loadings to be equal for husbands and wives did not lead to a deterioration of model fit, $\Delta\chi^2(6) = 3.33$, *ns*, which indicates that the relationship of each of the latent constructs (causal attributions, responsibility attributions, and conflict) to their respective indicators was the same for both husbands and wives (cf. Meredith, 1993).

In a structural equation modeling framework, the test that the relation between causal attributions and reported conflict is fully mediated by

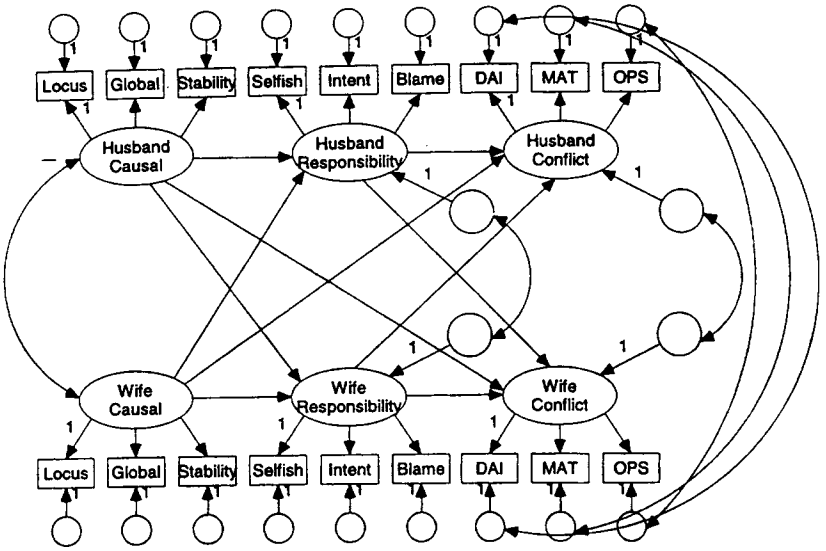

Figure 1. Theoretical model with all possible paths specified. DAI = Destructive Arguing Inventory; MAT = Marital Adjustment Test; OPS = O'Leary–Porter Scale.

responsibility attributions is to fix the relevant paths to 0 (i.e., between causal attributions and conflict) and test the resulting change in model fit. For the present model, we were able to constrain the direct effects of causal attributions on conflict without a significant deterioration in model fit, $\Delta\chi^2(2) = 3.35$, *ns*. Thus, all of the association between causal attributions and reported conflict is mediated through responsibility attributions. We also tested a model with the reverse causal sequencing of the attribution constructs in which responsibility attributions were measured at Wave 1 and causal attributions and conflict were measured at Wave 2. This model did not fit the data as well, $\chi^2(125) = 198.72$, $p < .0001$, NFI = .89, TLI = .95, RMSEA = .05 as the theoretically hypothesized model.

Gender Differences

Two explanations were examined for possible gender differences involving marital attributions. Each is addressed in turn.

Table 4
Cross-Sectional and Longitudinal Correlations Among Latent Variables

	Husbands			Wives		
Variable	Causal	Responsibility	Conflict	Causal	Responsibility	Conflict
Husbands						
Causal	—	.50	.43	.34	.32	.29
Responsibility	.84	—	.57	.04[a]	.28	.40
Conflict	.59	.49	—	.18[a]	.64	.87
Wives						
Causal	.32	.13[a]	.39	—	.67	.43
Responsibility	.33	.27	.40	.90	—	.73
Conflict	.43	.36	.56	.63	.67	—

Note. Correlations above the diagonal represent causal attributions at Time 1 and responsibility attributions and conflict at Time 2. Correlations below the diagonal represent Time 1 measures. All correlations are significant at $\alpha = .05$ unless otherwise indicated. Analyses performed with these correlations will not necessarily replicate results reported because our analyses use full information maximum likelihood methods.
[a] Nonsignificant at $\alpha = .05$.

Are there gender differences in the constructs investigated? The first explanation we examine is that the constructs of causal attributions, responsibility attributions, and conflict differ for men and women. As outlined above, our test of factorial invariance across spouse gender demonstrated that we were measuring each of the latent constructs on the same scale. However, additional analyses are necessary to determine whether there are differences in reliability of measurement between husbands and wives. Deinzer et al. (1995) illustrated that coefficient alpha and other indices of the reliability for a single scale tell only part of the story. Instead, "only the degree of divergence between multiple measurements of the same latent variable conveys information about the unreliability of the single measurements" (Deinzer et al., 1995, p. 9). From classical test theory, every observation X consists of a true score component T and an error component E, with reliability being defined as the ratio of true score variability to total variability, $\rho xx = \sigma^2_T/(\sigma^2_T + \sigma^2_E)$. In the present context, this gives us three different ways in which the same latent construct, measured on the same scale, can have different measurement properties for husbands than for wives: (a) true score variability may be greater for one spouse than the other, with errors of measurement being equal for both spouses; (b) true score variability may be equal for both spouses, but errors of measurement may differ across spouses; and (c) both true score variability and error variance may differ between spouses, with their ratio also differing.

Our current latent variable framework permitted us to test these hypotheses for causal and responsibility attributions and for marital conflict across spouses. For causal attributions, constraining true score variances to be equal across spouses did not diminish model fit, $\Delta\chi^2(1) = 1.74$, *ns*, but the residual variances for all three indicators were significantly greater for wives than for husbands, $\Delta\chi^2(3) = 36.42$, $p < .0001$. For responsibility attributions, both true score variability, $\Delta\chi^2(1) = 0.64$, *ns*, and residual variability, $\Delta\chi^2(3) = 7.65$, *ns*, were equal across husbands and wives. Finally, true score variability in marital conflict was greater for wives than for husbands, $\Delta\chi^2(1) = 19.04$, $p < .0001$, but residual variability was equal across spouses, $\Delta\chi^2(3) = 7.32$, *ns*. In sum, then, causal attributions were measured more reliably for husbands than for wives, and responsibility attributions had equivalent measurement properties for both spouses, but marital conflict was measured more reliably for wives than for husbands because of wives reporting greater true score variability in conflict. In practical terms, then, these results suggest that the larger effect sizes observed for women than for men in the relation between attributions and marital conflict might be due, in part at least, to differences in the measurement properties of these scales between husbands and wives. We test the possibility that the relation is not different at the latent variable level (i.e., that observed differences are due to measurement properties) in the next section.

Are gender differences independent of measurement error? To test this question, we compared a set of nested models. Beginning with the fully mediated model described above, we proceeded to add a set of equality constraints to the regression coefficients across husbands and wives. We began by constraining the unstandardized structural regression coefficients between causal and responsibility attributions to be equal for both spouses. Model fit was not affected by this constraint, $\Delta\chi^2(1) = 0.70$, *ns*, suggesting that, once measurement error was controlled for, the relationship between causal attributions and responsibility attributions was identical across spouses. Next, we tested whether the relationship between responsibility attributions and reported conflict was the same for both husbands and wives. This model fit significantly poorer, $\Delta\chi^2(1) = 9.75$, $p < .01$, because the relation between responsibility attributions and conflict was stronger for wives ($\beta = .66$) than for husbands ($\beta = .40$), which suggests that the relationship between responsibility attributions and conflict was stronger for wives even after controlling for differences in measurement error.

Toward a Dyadic Perspective

A third goal of this study was to examine the role of interspouse and intraspouse effects and thereby model attributional processes at the dyadic level. This also allowed examination of the entailment model in the context of cross-spouse effects.

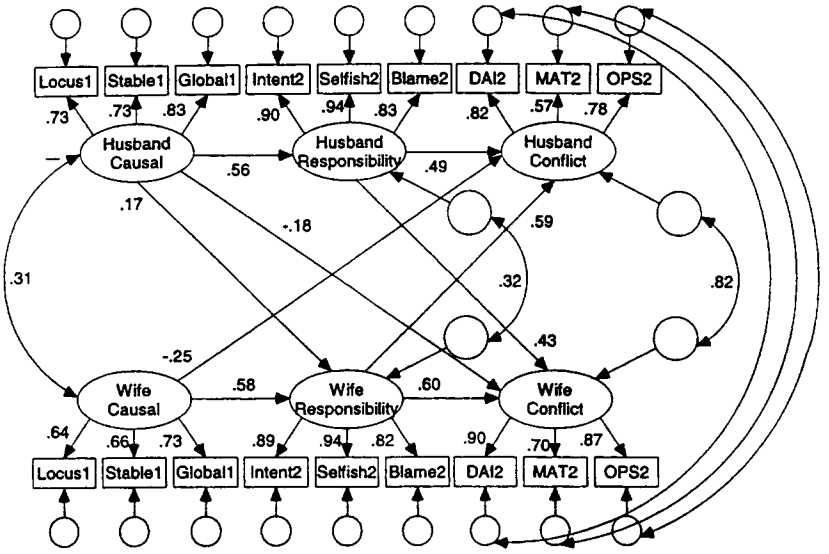

Figure 2. Standardized coefficients for selected longitudinal model. DAI = Destructive Arguing Inventory; MAT = Marital Adjustment Test; OPS = O'Leary–Porter Scale.

Is a dyadic model needed to capture cross-spouse influences? The first stage in this process was to examine the cross-spouse associations which, to this point, had been permitted to intercorrelate within the entailment framework (i.e., causal attributions → responsibility attributions → conflict). Husbands' causal attributions were positively correlated with wives' causal attributions, indicating that husbands and wives made similar causal attributions about one another. Husbands' causal attributions were positively associated with their wives' responsibility attributions, although the corresponding influence of wives' causal attributions was nonsignificant. Each spouse's responsibility attributions, however, were positively associated with his or her partner's reports of conflict, and the magnitude of these effects did not differ between husbands and wives, $\Delta\chi^2(1) = 1.16$, *ns*. Interestingly, there were significant negative cross-spouse effects leading from one partner's causal attributions to the other spouse's reports of conflict, and these effects were also equal across spouses, $\Delta\chi^2(1) = 0.26$, *ns*. To make sense of these findings, it is necessary to consider also the indirect effects which imply positive correlations both between husbands' causal attributions and wives' conflict ($r = .27$) and between wives' causal attributions and husbands' conflict ($r = .21$). Accordingly, partner causal attributions have a conflict promoting effect only because of their indirect influence through responsibility attributions. Their direct effect on conflict is small and is not conflict promoting. These findings suggest that if a spouse made conflict-promoting causal or responsibility attributions for partner behavior, the partner was likely to report greater marital conflict, even when we controlled for the spouse's own attributions and the nonindependence of spouse reports. However, the responsibility attributions made by each partner emerge as critical in accounting for the conflict promoting effects of attributions.

Figure 2 illustrates the model described above.[1] This was the model selected as our final model and the one used to assess the need for a dyadic conception of relationship attributions and reported conflict. This model provided a very good fit to the data, $\chi^2(136) = 142.93$, *ns*, normal fit index (NFI) = .91, TLI = .99,

[1] The completely standardized solution (all observed and latent variables standardized to unit variance after model estimation) is presented. Although equality constraints were placed on factor loadings and structural coefficients across spouses, their standardized values differ in the figure presented. The resulting parameter estimates may be interpreted in correlation metric.

RMSEA = .02. Disattenuated for measurement error, this model accounted for 25% and 42% of the reliable variance in both husbands' and wives' responsibility attributions, respectively. Similarly, the model accounted for 63% of the variance in husbands' reported conflict and 56% of wives' reported conflict. All direct and indirect effects in the model are significant beyond the $p = .01$ level.

Having identified the best-fitting model, we could compare this model against a model in which the dyadic component was not included. Constraining cross-spouse paths to be 0 resulted in a substantial decrease in model fit, $\Delta\chi^2(9) = 114.40$, $p < .0001$. For this reason, our results are highly consistent with the idea that attributions and reported conflict are best modeled at the dyadic level. Clearly, one spouse's attributions are important for understanding the other spouse's assessments of marital conflict.

Does analysis at the dyadic level support or disconfirm the entailment model? It remains to note that the entailment relations among attributions and reported conflict at the intra spouse level were also supported when the data were examined at the dyadic level. Thus, despite significant cross-spouse effects, a model in which causal attributions lead to responsibility attributions which, in turn, lead to reported conflict was consistent with the data obtained for both husbands and wives. Just as responsibility attributions mediate the conflict-promoting effects of causal attributions within person, they also mediate the conflict-promoting effects of causal attributions by the partner. The direct, unmediated effects of causal attributions on conflict were not conflict promoting. This suggests that at the dyadic level as well as at the individual level, responsibility attributions are pivotal to understanding the conflict-promoting effects of attributions for negative partner behavior.

Discussion

In this article we set out to address three sets of issues. The first concerned the relations among causal attributions, responsibility attributions, and marital conflict, and it provided the opportunity to examine whether spouses distinguish between the two types of attributions. A two-factor model incorporating the distinction between causal and responsibility attributions provided a better fit to the data than did a one-factor model. Although the two types of attributions were highly correlated, this finding nonetheless supports the prior theoretically based decision to assess different types of attributions.

Further support for distinguishing these two types of attributions comes from our analysis of the entailment model. Our data supported the hypothesized sequential ordering of causal and responsibility attributions in which responsibility attributions entail or presuppose causal attribution; in addition, responsibility attributions fully mediated the relationship between causal attributions and reported conflict. The progression from causal attributions to responsibility attributions to reported conflict is consistent with Lussier et al.'s (1993) support for the entailment model. The present data, however, show that these entailment relations emerge when the constructs are measured with multiitem scales, when measurement error is corrected, and when all paths are simultaneously estimated.

It might be argued that the high correlation between causal and responsibility attributions might be responsible for these mediational findings. However, two considerations mitigate against accepting this argument. First, Kenny, Kashy, and Bolger (1998, pp. 261–262) suggested that the opposite argument holds as they noted that the effective sample size (nonlinearly, but monotonically, related to statistical power) for detecting a mediating effect is approximately $N(1 - r_{xm}^2)$, where in this case r_{xm} is the correlation between causal and responsibility attributions. When the two constructs correlate at .5, the effective sample size for testing mediation is 75% of the total sample size, whereas it is 81% of the total sample size when the two constructs correlate at a more modest .3. Thus, under the present conditions, our test is actually more conservative than it would be under the case of a "weak mediator" because of the high degree of collinearity between causal and responsibility attributions. Second, our two longitudinal models comparing causal and responsibility attributions as mediators would presumably have yielded equivalent results if mediation simply reflected the high association between the two constructs. Finally, in results not presented here, we did test mediation using

cross-sectional data. Even when causal and responsibility attributions correlated at levels above .8, we could still remove the indirect path from causal attributions to conflict without affecting model fit.

The second issue investigated dealt with gender differences as a recent meta-analysis of research suggests a stronger relationship between attributions and marital outcomes for women than for men (Fincham, 2001). As such results might arise from gender-related differences in measurement of the constructs investigated, we examined whether the factor loadings obtained in this study were invariant across husbands and wives. Although all of the latent variables were measured on an equivalent metric for men and women, we found gender differences in the measurement properties of these constructs. Causal attributions were measured slightly more reliably for husbands than for wives, but both spouses reported equal true score variability in this construct. There were no differences in the measurement properties of responsibility attributions for husbands and wives, and marital conflict was measured more reliably for wives than for husbands because wives reported greater true score variability in conflict than did husbands. These results suggest that, disattenuated for measurement error, the relation between responsibility attributions and conflict was still stronger for women than it was for men. The finding of measurement equivalence across spouse gender sets the stage for examining whether the entailment model characterizes the relations among causal attributions, responsibility attributions, and reported conflict in both men and women. Imposing equality constraints on corresponding paths for husbands and wives showed that the relations among constructs were otherwise equivalent. This is the first demonstration that the hypothesized entailment relations exist independently of measurement error.

The third issue examined in our study dealt with a dyadic perspective on attributional processes. Previous examinations of attributions in marriage have focused largely on intraindividual processes. This is unfortunate in that marital partners form an interdependent unit and so attributions regarding salient marital events might be expected to have an influence that extends beyond the self. This might occur either through the influence of a spouse's attributions on his or her own behavior which, in turn, impacts the partner or more directly through the communication of attributions to the partner. If so, this should be observable as dependencies between partners in attributional processes and in reported conflict. In addition, it should be observable as cross-spouse influences on the manner in which entailment processes unfold for the partner. These hypotheses imply that a model of entailment processes will provide a better fit to the data if it allows for partner influence. The current analyses demonstrate that a dyadic model that allows for cross-spouse effects better captures attributional processes in marriage than one that does not allow for such effects. At the same time, however, the hypothesized entailment processes were found when cross-spouse effects were allowed, suggesting that the entailment model is robust with regard to these modeling decisions.

A dyadic perspective on attributional processes is important for both theoretical and practical reasons. At a theoretical level, a dyadic perspective allows attribution theory to entertain interspouse, as well as intraspouse, effects. In the context of the current investigation, these interspouse effects included paths between one spouse's causal and responsibility attributions and the other spouse's reports of conflict, suggesting substantial cross-spouse influences. As well, these results suggest that husbands' causal attributions can affect wives' attributions of responsibility and that the causal attributions of both partners have a direct conflict-reducing effect on the partner. Consistent with the entailment model, we found that when partners see the cause of negative behavior as internal to the partner as well as stable and global, this has negative effects on conflict only insofar as it promotes more negatively valenced responsibility attributions. To the extent that causal attributions do not promote more negative responsibility attributions they promote less conflict, perhaps by prompting greater accommodation given that the partner is viewed as being relatively unable to change (Rusbult, Yovetich, & Verette, 1996). Our findings need to be viewed in the context of an important limitation: The data are comprised of self-reports of attributions and conflict. Although the use of multiple measures is helpful in dealing with problems of

measurement error, the findings are still limited by the use of a single method to assess constructs. Whether the findings therefore generalize to observed behavior and to attributions coded from couple conversations remains an open question. It should be noted, however, that self-reports may be a particularly valid approach to the assessment of spouse conclusions about partner behavior and perceptions of conflict. Accordingly, whereas the generalizability of the results is unknown, the results may be taken, at a minimum, as advancing our understanding of the link between interpretive biases (i.e., attributional style) and level of perceived conflict with the partner.

Implications for Application and Public Policy

Marital conflict has been linked to mental and physical health problems as difficulties in the broader family system (Fincham & Beach, 1999). The entailment model provides a well validated core for a model of marital conflict. In our investigation, the entailment model has survived stringent tests both in terms of distinguishing causal and responsibility attributions and in the introduction of partner effects. The model appears to be useful for understanding both men's and women's perception of conflict in response to negative partner behavior. As predicted by the entailment model, marital attributions are important in predicting marital conflict, and it is responsibility attributions that are proximal to the perception of conflict. Therefore, attributions of responsibility should remain at the forefront of efforts to develop new, more powerful forms of marital intervention, and as new forms of intervention are proposed they should be examined from the standpoint of their effect on attributions of responsibility. Accordingly, the entailment model emerges from the current examination as a stronger conceptual tool for examination of factors related to marital conflict and for the examination of marital therapy process.

Perhaps more important, the entailment model provides a conceptual tool in the development of new approaches to interventions for reducing marital conflict. Although several approaches to marital therapy have been shown to be efficacious (Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998), the model of marital conflict guiding the various approaches remains poorly developed. This creates a serious obstacle to the improvement of these approaches (Beach & Fincham, 2000). The entailment model provides a theoretically neutral perspective from which the effects of empirically supported interventions such as behavioral marital therapy, emotion focused therapy, and insight oriented marital therapy may be examined and compared with newer forms of therapy such as integrative couples therapy. Our results suggest that much of the variance in conflict (63% for husbands and 56% for wives) may be accounted for by attributional processes. Accordingly, therapies that are able to produce changes in attributions of responsibility are likely to be associated with reliable reductions in marital conflict.

Our results suggest also the importance of treating couples, rather than individuals, for the problem of marital conflict. Although it has long been debated whether marital conflict can be successfully treated in the absence of one partner, the current results suggest some limitations to any "individual" form of marital therapy. Cross-spouse effects from responsibility attributions to perceived conflict were found to be of the same general magnitude as within-spouse effects. Accordingly, in the absence of the partner, approximately half of the potential effect of intervention might be absent as well. This suggests that individual approaches to marital conflict, although not entirely without merit, may be inherently limited in the magnitude of change they can accomplish.

As researchers continue to untangle the web of relationships that connect attribution of responsibility with marital conflict, it is important to recall that approximately half of the variance in perceived conflict remained unaccounted for even after disattenuating relationships for measurement error. Accordingly, the entailment model, although a useful foundation for understanding the marital conflict that results from negative partner behavior, must not be telling the whole story. Most likely a fuller model will need to consider couples' efforts at coping positively with partner transgressions (cf. Fincham, 2001).

To conclude, our findings draw attention to underinvestigated and overlooked issues in research on marital attributions. Specifically,

these findings provide empirical support for the theoretical distinction between causal and responsibility attributions and for the entailment model specifying the relations between these types of attributions and marital outcomes. Perhaps most important, our findings show the necessity of viewing attributional processes from a dyadic perspective. This perspective is underutilized in the literature examining the influence of intrapersonal processes on dyadic outcomes. The current investigation, therefore, serves as an example of the integration of intra- and interpersonal perspectives. Until a dyadic perspective is adopted routinely in the marital literature, it will be difficult to understand fully that which is unique about close relationships, namely the interdependence that exists between spouses.

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