

Moderators of the Link between Marital Hostility and Change in Spouses' Depressive Symptoms

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Abstract:

This study examined the moderating roles of marital warmth and recent life events in the association between observed marital hostility and changes in spouses' depressive symptoms over 3 years. Using the actor-partner interdependence model (APIM), structural equation models ($N = 416$ couples) suggested that husbands' marital hostility was significantly related to increases in wives' depressive symptoms. Moderator analyses showed that husbands' warmth and wives' warmth moderate the association between marital hostility and change in wives' depressive symptoms. The association between husbands' hostility and increases in wives' depressive symptoms was stronger under conditions of lower levels of husbands' warmth than under conditions of higher levels of husbands' warmth. This same pattern was found for wives' warmth. Regarding life events, the association between wives' hostility and increases in husbands' depressive symptoms was stronger for couples with more recent life events than for couples with fewer recent life events. Practical and empirical implications are discussed.

Article:

Marital processes and spouses' depressive symptoms co-occur, both concurrently and over time (Proulx, Helms, & Buehler, 2007). Recent research suggests that hostile exchanges in marriage are associated with increased depressive symptoms (Uebelacker, Courtnage, & Whisman, 2003), especially for wives (Whitton et al., 2007). With depression affecting nearly a fifth of the United States' population sometime over the life course (Kessler, Berglund, Demler, Jin, & Walters, 2005) and creating significant costs for individuals, families, and society (Cummings, Keller, & Davies, 2005; Greenburg & Birnbaum, 2005), it is important to better understand not only what precipitates depressive symptoms but also the contextual factors that may place individuals at further risk or, alternatively, protect them from deleterious effects.

Little is known about the circumstances under which the longitudinal association between marital hostility and depressive symptoms may vary because studies have failed to recognize the broader relational or extrafamilial contexts in which hostile marital exchanges occur. It is likely that the broader contexts in which spouses are situated shape the association between hostile marital behaviors and changes in spouses' depressive symptoms across time. Understanding these contextual influences is important to better address the needs of couples in which one or both spouses may be experiencing elevated levels of depressive symptoms. Thus, the purpose of

the present study was to examine the moderating role of relational and contextual variables in conditionalizing the association between husbands' and wives' hostile marital behavior and change in spouses' depressive symptoms.

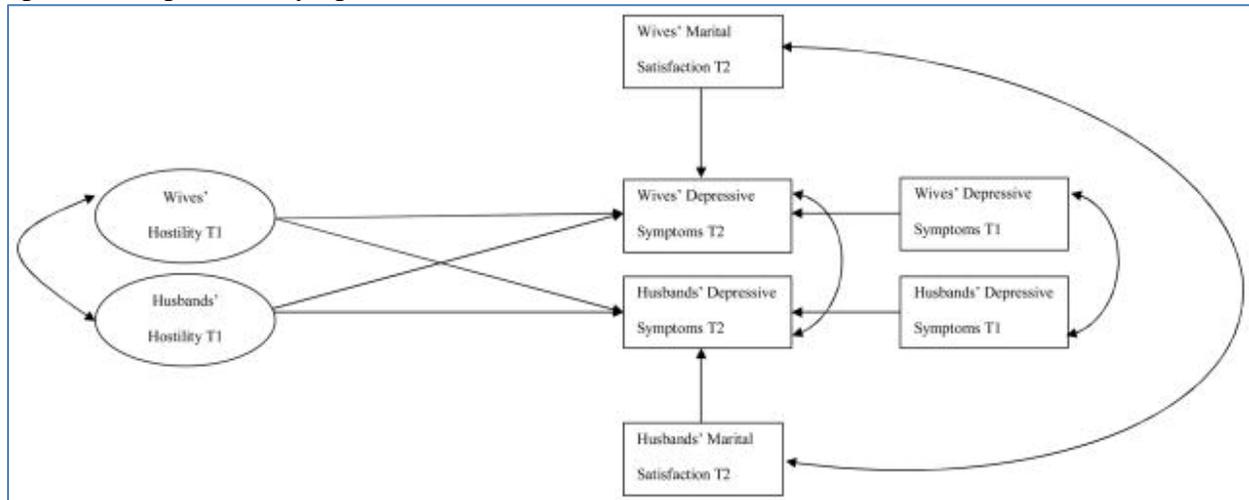
THEORETICAL AND EMPIRICAL FOUNDATIONS

Although the association between hostile behavioral exchanges in marriage and spouses' depressive symptoms is likely bi-directional (Davila, Bradbury, Cohan, & Tochluk, 1997), research has supported theorizing that the primary causal direction leads from marital process to spouses' depressive symptoms (Beach, Sandeen, & O'Leary, 1990). Results of a recent meta-analysis supported this theorizing by demonstrating that the strength of the longitudinal association between marital process and spouses' well-being is stronger when marital quality predicts well-being than when the causal direction is reversed (Proulx et al., 2007). Other theoretical perspectives also support the causal link between spouses' negative processes in marriage and spouses' well-being. The stress process framework (Pearlin, Menaghan, Lieberman, & Mullan, 1981) suggests that strains in salient roles such as spouse can cause stress, which typically manifests in the form of psychological or physical distress (Choi & Marks, 2008). A marriage high in hostility may wear on spouses' psychological well-being over time by degrading their sense of self, discouraging support-seeking from their spouses (Choi & Marks), or causing permanent autonomic or endocrine changes that are directly related to mood (Robles & Kiecolt-Glaser, 2003). Taken together, the marital discord model of depression and the stress process framework offer support for the prospective association between marital process and spouses' depressive symptoms and are particularly well-suited to longitudinal data given their emphasis on causal patterning. We used these theoretical models to inform the present study, and hypothesized that spouses' hostile marital behaviors predict increases in their partners' depressive symptoms over time.

To date, most studies on the association between marital hostility and spouses' depressive symptoms have focused on partner effects, or the association between one's spouse's hostility and one's own depressive symptoms. Research also suggests that one's own marital hostility (as measured with self-reports) is linked concurrently to depressive symptoms even when controlling for spouses' marital hostility (Brummet et al., 2000), and newlywed husbands' observed marital anger predicted increases in their own depressive symptoms over 18 months (Cohan & Bradbury, 1997). Such findings emphasize the importance of considering partner effects simultaneously with actor (i.e., self) effects (Kenny, 1996). Thus, in the present study, we draw on the actor-partner interdependence model (APIM; Kenny) to account for the effect of both spouses' hostility on both spouses' change in depressive symptoms (see Figure 1). Pairing the marital discord model of depression with behavioral theories (Karney & Bradbury, 1995) which suggest that one's own behavior in close relationships may impact own well-being, we hypothesized that spouses' own hostile behaviors toward their partners are linked to increases in their own depressive symptoms. There are several possible reasons why this association may occur. One, if a spouse expresses hostility toward his or her partner, yet believes that being a good husband or wife means not expressing hostility, this may result in negative feelings about oneself, which would then lead to depressive symptoms (Chen, Boucher, & Tapias, 2006). Alternatively, it is possible that expressing hostility towards one's spouse simply does not produce beneficial feelings if it is a pattern repeated over time. Research has established that "not being nasty matters more than being nice" for marital well-being (Ewart, Taylor, Kraemer, &

Agras, 1991), and this saying may also be true for links between one’s own behavior and one’s personal well-being: being “nasty” may not be beneficial to the marital relationship or personal well-being. Although we did not explore these possible explanatory mechanisms in the present study, to our knowledge this is the first study to look at the possible links between spouses’ marital behavior as observed by trained coders and own reports of depressive symptoms over time, as well as the potential moderators of this association.

Figure 1: Conceptual Model for the Association between Marital Hostility and Change in Spouses’ Depressive Symptoms



Note. W = Wife, H = Husband. Residual terms corresponding to husbands’ and wives’ depressive symptoms were correlated, as were the error terms of the manifest indicators of marital hostility and marital satisfaction.

In addition to hypothesizing the direct links between marital hostility and spouses’ increased depressive symptoms, we also hypothesized that these links vary under specific circumstances both internal and external to the marriage. We used risk and resiliency to inform these moderating hypotheses (Anthony, 1987). A risk and resiliency framework enables researchers to recognize the internal and external factors that might protect couples or put them at further risk for negative outcomes (Gordon, Friedman, Miller, & Gaertner, 2005; Karney & Bradbury, 2005). Research on the association between marital process and spouses’ depressive symptoms provided support for a model in which context moderates the link between marital hostility and increases in spouses’ depressive symptoms. For example, research has found that attributions made by spouses for their partners’ negative behavior moderate the concurrent link between marriage and depressive symptoms, such that when spouses placed less blame on their partners for negative behavior, the link between marital discord and depressive symptoms was weakened (Gordon et al.). This study provides evidence that processes internal to the spouses (i.e., cognitive process) shape the association between marital process and depressive symptoms, but it remains unclear if other contextual variables also moderate this association. In the present study, we focus on two moderating variables: stressors posed by recent life events and marital warmth.

Moderating Role of Life Events

Researchers have long acknowledged that families rarely negotiate just one stressful life event at a time (Lavee, McCubbin, & Olson, 1987). When these external contexts become stressful,

spouses may find their coping resources depleted (Karney & Bradbury, 2005; Tesser & Beach, 1998). Given that even well-adjusted couples encounter multiple stressful life events (Neff & Karney, 2004), it is important to understand how marital processes interact with events outside the marriage to predict change in spouses' depressive symptoms. Research to date has focused on how stress in the external environment shapes spouses' evaluations of their marriages, suggesting that stress from external life events erodes relationship satisfaction (Bodenmann, 1997; Cohan & Bradbury, 1997). Less is known, however, about how external life events may interact with spouses' behavior toward one another to affect personal well-being. Research on newlywed spouses suggests that wives' marital behavior moderated the association between life events and change in husbands' depressive symptoms over 18 months, such that when wives displayed high proportions of anger during a problem solving task, husbands' interpersonal events were associated with increased depressive symptoms (Cohan & Bradbury, 1997). In choosing to examine life events as a moderator, however, we suggest that spouses situated in an environment characterized by a relatively greater number of recent life events may be particularly vulnerable to the negative impact of hostile behavior from their spouses. At a time when spouses may most benefit from supportive marital interactions, the negative impact of hostile marital behavior may be amplified. Drawing from a risk and resilience perspective, we hypothesize that the link between hostile marital behavior and increased depressive symptoms will be stronger under conditions of relatively more recent life events than it will be under conditions of fewer recent life events.

Moderating Role of Marital Warmth

The importance of recognizing marital hostility and warmth as conceptually and empirically distinct marital features is underscored by recent research (Henry, Berg, Smith, & Florsheim, 2007). Because warmth and hostility may co-occur in marriage and have differential effects on spouses, it is important to consider their presence simultaneously. For example, recent research has found that affection buffers the effects of negative marital behavior on marital satisfaction (Fincham, 2003). This finding suggests that hostile behavior is particularly deleterious for spouses when it occurs in a marriage not simultaneously characterized by marital warmth. This mechanism, however, has not been studied in relation to the effects of spouses' negative behavior on changes in depressive symptoms. We hypothesized that when hostile marital exchanges occur in a marital environment that also is characterized by warm marital exchanges, the association between marital hostility and change in depressive symptoms will be weaker than when marriages are characterized by less marital warmth.

THE PRESENT STUDY

Because marital satisfaction is known to be significantly related to spouses' depressive symptoms (Proulx et al., 2007), it is treated as a covariate in the present study. The present study also addressed methodological limitations in previous research by using different reporters to assess constructs. When using single reporters and a single method of data collection (such as self-report questionnaires) associations between variables are likely to be inflated due to shared method variance (Bank, Burraston, & Snyder, 2004). Particularly when measuring a construct such as depressive symptoms, an individual's disposition is likely to be part of shared method variance and influence reports of marital behavior (Baucom, Sayers, & Duhe, 1989). Therefore, the present study used separate reporters to measure the independent and dependent variables,

resulting in findings that were less susceptible to inference errors (Lorenz, Conger, Simon, Whitbeck, & Elder, 1991).

METHOD

Participants and Procedure

Data were drawn from two waves of a longitudinal project designed to examine the association between marital conflict and adolescent maladjustment. Sixth-grade students from 13 middle schools in a large southeastern county were invited to participate in a study of family life through a letter distributed during homeroom. Two follow-up invitations were mailed directly to the parents' homes. About 73% of the consent forms were returned, with an 80% consent rate. Families were eligible for the longitudinal study if there were two parents in the home and no stepchildren in or out of the home. Of the 1,131 eligible families, 416 (37%) participated. The most frequent reasons given for nonparticipation were lack of time and a family member (i.e., the mother, the father, or the youth) not wanting to be videotaped. This participation rate is comparable with that of other studies involving multiple family members (Sweet, Bumpass, & Call, 1988, National Survey of Families and Households—34%; Updegraff et al., 2004—37%). Analyses comparing eligible participating and nonparticipating families by using the initial youth survey data indicated no significant differences, suggesting minimal selection bias.

Sample size at Time 2, three years after Time 1, was 322 families (22% attrition). Analyses comparing families who remained in the study for all 3 years versus those who attrited suggested little evidence of attrition bias. Spouses who attrited were compared with those who did not on background (i.e., family income) and study variables assessed at Time 1. A series of univariate ANOVAs showed two significant differences for wives only: wives in the continuously participating group were rated as less hostile toward their spouses [$F(2,413) = 6.03, p = .014$] and reported being more maritally satisfied [$F(2,413) = 8.86, p = .003$] than wives who dropped out by Time 2. Thus, the sample used in the present study may yield results that underestimate true associations between the variables of interest.

Families received \$100 for T1 participation and \$150 for T2 participation. In terms of ethnicity, 91% of the families were European American, 3% were African American, and 6% were other ethnicities. Compared with 1999 U.S. Census data for the same county, the demographic statistics of this sample were lower regarding the percentage of African American families (5% in county; United States Census Bureau, 2000c, Table PCT27 of SF4). The average level of parents' education was an associate's degree (2 years of college). Parents' educational attainment was similar to that of European adults in the county who were older than 24 years (county mean category was some college and no degree; U.S. Census Bureau, 2000c, Table P148A of SF4). The median level of 2001 household income for families in this study was approximately \$70,000, which was higher than the median 1999 income for married-couple families in the county (\$59,548; U.S. Census, 2000, Table PCT40 of SF3; \$64,689 inflation-adjusted dollars through 2001).

Assessment included mailed questionnaires, questionnaires completed during a home visit, and videotaped family interactions at both T1 and T2. Questionnaire packets were mailed to the family a few weeks prior to their annual assessment. Family members were asked to complete the questionnaires in private and to seal their completed questionnaire in their respective envelopes. Wives' and husbands' questionnaires were identical. Husbands and wives completed

the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) and the Kansas Marital Satisfaction scale (KMS; Schumm et al., 1986) at both T1 and T2. Both spouses completed a 22-item index of stressful life events (e.g., getting a new job, death of a family member, moving to a new home; Sarason, Johnson, & Siegel, 1978) at T2 only. Completed questionnaires were collected during the home visit. Family members also completed a brief questionnaire packet during each home visit. These home questionnaires contained the most sensitive measures and were completed during the home visit so that the researcher could ensure participants' privacy.

During the home assessment at each wave, family members participated in four videotaped interaction tasks. For each task, the interviewer explained the task to the family, helped them complete a sample question, and retired out of ear shot. Each task consisted of family members discussing questions about their family life. Videotaping families in their homes, versus in a laboratory setting, has numerous advantages, including the likelihood that couples are more comfortable in their own homes and thus more likely to act as they would when not under observation. Task 4, a 20-minute marital interaction task involving only the spouses, was the only task used for the current study (Tasks 1, 2, and 3 included focal youth relations). Husband and wife were asked to talk about their relationship, enjoyable times they had together, areas of conflict, and how they dealt with conflict. Although much observational work on marriage has used microanalytic observations of behavioral events and sequences (e.g., the Verbal Tactics Coding Scheme; Sillars, Coletti, Parry, & Rogers, 1982), the videotaped tasks in this study were rated using the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001), a macroanalytic rating scale that weighs both verbal and nonverbal behaviors. Comparisons of the micro and macro approaches suggest that, although there are similarities in information obtained by both approaches, macro ratings may provide a better measure of overall levels of positive and negative reciprocity (Julien, Markman, & Lindahl, 1989) and have proven successful at discriminating distressed from nondistressed marriages (Conger et al., 1990; Julien et al., 1989; Krokoff, Gottman, & Hass, 1989). Tasks were coded by trained coders who completed over 250 hours of training over several weeks and passed several written and viewing tests. Coders were trained to a criterion level, meaning they had to demonstrate consistent coding skills that met the requirements for the training program (Lorenz & Melby, 1994). Different coders rated each task within a family to prevent carryover bias. A second coder was randomly assigned to independently recode approximately 20% of the tasks so that interrater reliability could be assessed. Only T1 tasks are used in this study.

Measures

Depressive symptoms. Spouses completed the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item measure designed to assess depressive symptoms in a community sample (Radloff). Respondents were asked to think about the past week and use a 4-item scale ranging from 0 = *rarely or none of the time* to 3 = *most or all of the time*. These 20 items assess cognitive, affective, behavioral, and somatic symptoms associated with depression. Scores for the measure were created by summing across the 20 items and ranged from 0 to 60; higher scores indicated higher levels of symptoms. Cronbach's alpha at T1 was .85 and .89 for husbands and wives, respectively, and .91 and .92 for husbands and wives, respectively, at T2.

Observed hostility toward spouse. Spousal interaction was rated using the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001). Latent variables were formed using the hostility, antisocial, and contempt ratings from the spousal interaction task. Average single-item intraclass correlation coefficients based on a one-way random effects analysis of variance model were .45 for wives and .49 for husbands, which is adequate for these rating scales and comparable with other studies (Melby & Conger).

Observed warmth toward spouse. Spousal interaction was rated using the IFIRS warmth rating from the spousal interaction task (Melby & Conger, 2001). Average single-item intraclass correlation coefficients based on a one-way random effects analysis of variance model were .43 for wives and .50 for husbands (Melby & Conger).

Life events. Spouses completed a 22-item index of stressful life events (e.g., getting a new job, death of a family member, moving to a new home) that were rated as 1 = *never happened*; 2 = *happened in my lifetime*; and 3 = *happened in the last 6 months* (Sarason, Johnson, & Siegel, 1978). For the purposes of this study, items were recoded into 1 = *happened in the last 6 months* or 0 = *did not happen in the last 6 months*. Summed scores could range from 0 to 22. Husbands' and wives' scores were averaged to create an index of couples' recent life events. Cronbach alpha for the scale was .69 for both husbands and wives.

Marital satisfaction. The Kansas Marital Satisfaction scale (KMS; Schumm et al., 1986) was used as a measure of marital satisfaction. The 3-item instrument asks spouses to rate their satisfaction with their marriage, their spouse, and their relationship with their spouse on a 7-point scale (1 = *extremely dissatisfied*, 7 = *extremely satisfied*), yielding scores from 3 to 21. Cronbach alpha for the scale was .95 for husbands and for wives.

Analytic Procedures

Structural equation modeling (AMOS 7.0) was used to test hypotheses (Arbuckle, 2006). Full information maximum likelihood estimation (FIML) was used to handle missing data, which results in unbiased parameter estimates and appropriate standard errors when data are missing at random (MAR). FIML estimates are generally superior to those obtained with listwise deletion or other ad hoc methods, even when the MAR assumption is not fully met (Acock, 2005). The data for the present study were collected from married partners, and thus were nonindependent. To control for the nonindependence of the endogenous variables, the residual terms corresponding to husbands' and wives' depressive symptoms were correlated, as were the error terms of the manifest indicators of marital hostility and marital satisfaction (Kenny, Kashy, & Cook, 2006; Kline, 2004). Both actor and partner effects were estimated. Actor effects occurred when an individual's own negative marital behavior influenced his or her change in depressive symptoms, and partner effects occurred when an individual's negative marital behavior influenced his or her spouse's change in symptoms.

Informant and method bias were minimized, when possible, by assessing contiguous constructs with different informants or methods (Bank, Dishion, Skinner, & Patterson, 1990). Model fit was evaluated using the χ^2 statistic and several fit indices. Because of the large sample size, a significant χ^2 was expected for the models and two additional fit indices were considered (Raykov & Marcoulides, 2000): the comparative fit index (CFI; Bollen & Long, 1993) and the

root mean square error of approximation (RMSEA; Brown & Cudeck, 1993). CFI values above .95 indicated good model fit, whereas values between .90 and .95 indicated adequate model fit. RMSEA values below .05 indicated a good model fit and values between .06 and .08 indicated an adequate fit (Brown & Cudeck; Raykov & Marcoulides).

RESULTS

Zero-order correlations between the indicator variables, the moderator variables, the control variable, and depressive symptoms at T1 and T2 were mostly in expected directions (Table 1). The measurement model (Table 2) shows the two latent constructs included in the models, as well as the observed indicators for each construct and their factor loadings. All paths between the latent and observed variables were statistically significant ($p < .001$), and the model was a good fit to the data, $\chi^2(5) = 9.74$, $p = .08$, CFI = .99, RMSEA = .04.

Table 1: Correlations between study variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Wives' hostile behavior: hostility ^a	-														
2. Wives' hostile behavior: antisocial ^a	.79	-													
3. Wives' hostile behavior: contempt ^a	.58	.49	-												
4. Husbands' hostile behavior: hostility ^b	.49	.37	.21	-											
5. Husbands' hostile behavior: antisocial ^b	.40	.46	.17	.74	-										
6. Husbands' hostile behavior: contempt ^b	.23	.19	.17	.56	.74	-									
7. Wives' depressive affect T1	.15	.14	.10	.13	.14	.11	-								
8. Husbands' depressive affect T1	.17	.16	.09	.03	.02	.02	.24	-							
9. Wives' depressive affect T2	.10	.10	.12	.14	.16	.10	.44	.17	-						
10. Husbands' depressive affect T2	.15	.15	.04	.09	.10	.04	.19	.62	.21	-					
11. Life events	.16	.11	.10	.08	.13	.05	.25	.25	.35	.31	-				
12. Wives' warmth T1	.06	.01	-.05	.01	-.06	-.03	-.12	.02	.02	-.02	.05	-			
13. Husbands' warmth T1	.03	.00	-.02	-.04	-.09	-.10	-.05	.00	.06	-.03	.08	.50	-		
14. Wives' marital satisfaction T2	-.18	-.17	-.15	-.07	-.14	-.03	-.14	-.32	-.41	-.35	-.29	.02	-.04	-	
15. Husbands' marital satisfaction T2	-.06	-.08	-.05	-.05	-.08	.00	-.14	-.23	-.23	-.42	-.12	-.02	.10	.33	-
M	2.80	3.26	1.38	2.30	3.12	1.28	7.19	6.21	9.04	8.53	1.53	3.77	3.43	17.19	17.24
SD	2.00	1.73	.99	1.85	1.79	.92	7.09	6.15	8.89	8.49	1.65	2.05	2.00	3.97	4.18
Range	1-9	1-9	1-9	1-9	1-9	1-7	0-48	0-48	0-52	0-46	0-10.5	1-9	1-9	3-21	3-21

Note. N = 416. Correlations in bold are significant at the $p < .05$ level. Superscripts are indicators for latent variables.

^aWives' hostile marital behavior.

^bHusbands' hostile marital behavior.

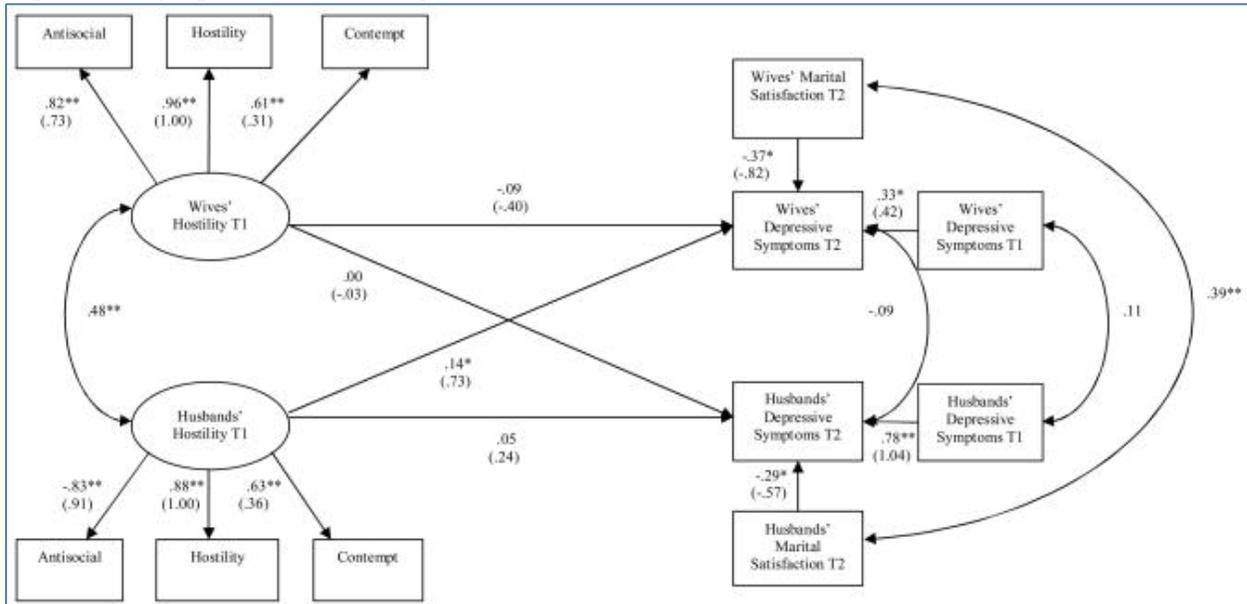
Table 2: Unstandardized factor loadings and standardized factor loadings for conceptual model (Standard Errors in Parentheses; N = 416 couples).

Parameter Estimate	Unstandardized	Standardized
Measurement Model		
Wives' marital behavior: T1		
Antisocial	.73 (.04)	.82**
Hostility	1.00 (.00)	.96**
Contempt	.32 (.02)	.61**
Husbands' marital behavior: T1		
Antisocial	.91 (.06)	.83**
Hostility	1.00 (.00)	.88**
Contempt	.36 (.03)	.63**

** $p < .001$.

We first examined a model with the direct actor and partner effects of hostile marital behavior predicting change in spouses' depressive symptoms from T1 to T2 controlling for marital satisfaction (see Figure 2). The model fit well, $\chi^2(43) = 119.80$, $p < .01$, CFI = .95, RMSEA = .06. One of the hypothesized structural pathways was significant: husbands' hostile marital behavior was positively related to increases in wives' depressive symptoms ($B = .73$, $SE = .32$).

Figure 2: Analytic model for the associations between marital hostility and change in spouses' depressive symptoms, controlling for marital satisfaction



Note. Unstandardized betas in parentheses. Residual terms corresponding to husbands' and wives' depressive symptoms were correlated, as were the error terms of the manifest indicators of marital hostility and marital satisfaction. * $p < .05$. ** $p < .01$.

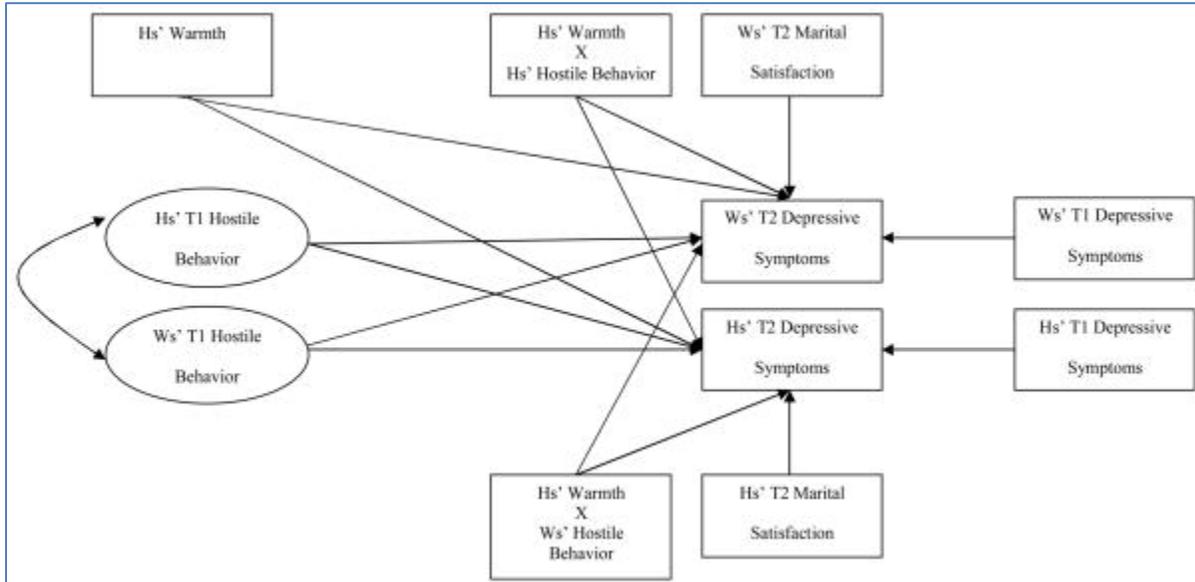
Moderator Analyses

To test the moderator hypotheses, interaction terms between the mean-centered sum score of the marital hostility indicators (Franck & Buehler, 2007) and the moderator variables were added as manifest indicators to the model shown in Figure 2. For example, in the husbands' warmth as moderator model, two interaction terms were created: the interaction between husbands' warmth and husbands' hostile marital interaction and the interaction between husbands' warmth and wives' hostile marital interaction (see Figure 3). Significant path loadings from the manifest interaction term to spouses' depressive symptoms at T2 indicated a significant interaction. Significant interactions were probed with multi-group SEM analyses (Byrne, 2001). For each significant moderator, the sample was divided into three groups: a higher-risk group, representing the top third highest scores on life events or the lowest third on spousal (i.e., husbands' or wives') warmth; a lower-risk group, representing the lowest third on life events or the highest third on spousal warmth, and an average group, representing those in the middle (Kiesner & Pastore, 2005). Follow-up comparisons were made between the higher and lower-risk groups.

Life events. The structural path from the interaction between life events and wives' marital hostility to change in husbands' depressive symptoms was significant ($B = .15$, $SE = .07$, $p < .05$). Follow-up analyses indicated that for husbands in the higher life events group, wives' hostile behavior was positively related to husbands' increased depressive symptoms ($B = .28$, $SE = .35$). Alternatively, for husbands in the fewer life events group, wives' hostile behavior was not related to husbands' increased depressive symptoms ($B = .05$, $SE = .25$).

Husbands' marital warmth. The structural path from the interaction between husbands' warmth and husbands' marital hostility to wives' depressive symptoms was significant ($B = -.15$, $SE = .06$, $p < .05$). Results showed that for wives in the lower husbands' warmth group, husbands' hostile behavior was positively related to wives' increased depressive symptoms ($B = 2.40$, $SE = .52$). Alternatively, for wives in the higher husbands' warmth group, husbands' hostile behavior was not related to wives' increased depressive symptoms ($B = -.03$, $SE = .45$).

Figure 3: Conceptual model for the associations between marital hostility and change in depressive symptoms as moderated by husbands' warmth



Note. W = Wife, H = Husband. Residual terms corresponding to husbands' and wives' depressive symptoms were correlated, as were the error terms of the manifest indicators of marital hostility, marital satisfaction, and the moderator variables.

Wives' marital warmth. The structural path from the interaction between wives' warmth and husbands' marital hostility to wives' depressive symptoms was significant ($B = -.12$, $SE = .06$, $p < .05$). Follow-up analyses showed that for wives in the lower wives' warmth group, husbands' hostile behavior was positively related to wives' increased depressive symptoms ($B = 1.48$, $SE = .40$). Alternatively, for wives in the higher wives' warmth group, husbands' hostile behavior was not related to wives' increased depressive symptoms ($B = .16$, $SE = .69$).

DISCUSSION

This study integrated the marital discord model (Beach et al., 1990), a stress process perspective (Pearlin et al., 1981), and a risk and resilience framework (Anthony, 1987) to examine the moderators of the link between marital hostility and changes in spouses' depressive symptoms over three years. We found that wives' marital hostility was not significantly related to increases (or decreases) in their husbands' depressive symptoms but that husbands' hostile behavior was significantly related to increases in wives' depressive symptoms. Husbands' and wives' marital warmth moderated this association. In addition, life events moderated the association between wives' hostile behavior and changes in husbands' depressive symptoms such that at greater numbers of recent life events, wives' hostility was related to increases in husbands' depressive symptoms, whereas at fewer recent life events, wives' hostility was not related to increases in husbands' depressive symptoms.

The Main Effects Model

We found support for our hypotheses regarding the association between husbands' hostile marital behavior and increases in wives' depressive symptoms. In the main effects model, husbands' hostile behaviors were significantly related to increases in wives' depressive symptoms. Wives' negative marital behaviors were not significantly related to changes in husbands' depressive symptoms. These findings extend previous work on the concurrent link between hostility in marriage and spouses' depressive symptoms (Brummet et al., 2000) by suggesting that the positive link between husbands' marital hostility and wives' depressive symptoms also occurs longitudinally. Previous research and theorizing has suggested that wives' personal well-being is closely tied to the emotional climate of their marriages (Thompson & Walker, 1989). Thus, wives might be vulnerable to marital hostility (Beach, Katz, Kim, & Brody, 2003; Whisman, 2001) and perceive marital hostility as a significant stressor (Dehle & Weiss, 1998). Some researchers and theorists have suggested that women might accept blame or responsibility if marital relationships become distressed, with increased levels of marital distress being perceived as a personal rather than a relational problem (Moberg & Lazarus, 1990). These feelings of responsibility might lead women to experience increased depressive symptoms over time (Davila et al., 1997) when marital exchanges are hostile. This significant finding of a sustained influence of husbands' hostility on increases in wives' depressive symptoms is important given evidence that wives are often the first to uninvest in a marriage and more often file for divorce than do husbands (Hewitt, Western, & Baxter, 2006). Levels of hostility from husbands may be a precipitating factor in women's marital decision-making because they are significantly related to decreasing levels of personal well-being.

Although the link between husbands' marital hostility and increases in wives' depressive symptoms is significant, the strength of the association between marital hostility and change in depressive symptoms is not significantly different for husbands and wives. This pattern of findings is consistent with previous research findings that show that there are no gender differences in the strength of the longitudinal association between marital hostility and depressive symptoms (Proulx et al., 2007). Thus, it appears that, to date, the available evidence suggests that detection of gender differences in the association between marital processes and spouses' depressive symptoms might be particularly sensitive to the time between waves of data collection, as several cross-sectional studies support a significant gender difference in the association between these variables (e.g., Brummet et al., 2000; Proulx et al., 2007; Whisman, 2001). As research in this area continues, it will be particularly important to clarify these findings and the mechanisms behind them so as to best inform theory and practice.

Contrary to our hypotheses, actor effects were not significant in the main effects model: spouses' own hostile behaviors were not related to increases in their own depressive symptoms. Although the evidence supporting the marital discord model of depression and the stress process perspective (i.e., that marital distress precedes depressive symptoms; Beach et al., 1990) is robust for partner effects, other models may better explain the possible causal mechanisms for actor effects. For example, the stress generation hypothesis posits that depressed persons behave in ways that contribute to interpersonal conflict and stress (Davila et al., 1997), suggesting a causal ordering opposite of what we examined in the present study. An integration of this model with

the marital discord model and the stress process perspective suggests that perhaps actor and partner effects act in a different causal order. For example, it is possible that husbands' hostile marital behaviors precede their wives' depressive symptoms, and that wives' depressive symptoms then contribute to their own negative marital behaviors, such that the actor effect manifests itself in the opposite causal order as the partner effect. Future research should simultaneously incorporate these two models to determine if this causal order of events best explains actor and partner effects in the links between marital hostility and depressive symptoms over time. In light of evidence that wives' anger can be beneficial to their levels of well-being under the context of increased life events (Cohan & Bradbury, 1997), it also is possible that measures of marital interaction more micro in scope may yield different results than the ones presented here.

Moderators of the Association between Marital Hostility and Depressive Symptoms

Acknowledging that the context in which marital behaviors are exchanged may moderate their association with changes in depressive symptoms, we first examined the moderating role of recent life events. Life events moderated partner effects for husbands, but not for wives. Thus, for husbands experiencing relatively more recent life events, wives' observed hostile marital behavior was related to increases in husbands' depressive symptoms over time. This latter finding is particularly intriguing as there was no main effect for wives' hostility on change in husbands' depressive symptoms in the main effects model. Given that husbands seek much of their support from within their marriages (Helms, Crouter, & McHale, 2003) and are particularly sensitive to stressful events outside of marriage (Repetti, 1989), a greater number of recent life events may place them at risk for being negatively impacted by wives' marital hostility. Under these conditions, marital hostility from their wives may represent a 'last straw' for the amount of stress they can adequately manage. Under less stressful external conditions, husbands' depressive symptoms may not be affected by wives' hostility in the marriage. It appears that coaching wives to refrain from engaging in hostile behavior under certain conditions, such as a greater number of recent life events, would be beneficial for the well-being of their husbands. Further research is needed in this area to test this possibility and help practitioners working with married couples provide workable solutions to engaging in adaptive marital behaviors that benefit both spouses.

When examining the role of husbands' and wives' marital warmth as a moderator of the association between marital hostility and change in depressive symptoms, we found that both wives' warmth and husbands' warmth moderated the association between husbands' hostile marital behavior and increases in wives' depression. Husbands' hostile marital behavior was not related to increases in wives' depression if it occurred in a context that also was characterized by marital warmth from husbands or wives. For wives experiencing relatively lower levels of marital warmth from their husbands, or displaying relatively lower levels of warmth towards their husbands, husbands' hostile marital behavior remained significantly related to increases in their depressive symptoms. This pattern of findings underscores the importance of acknowledging the marital context in which hostile marital exchanges take place (Karney & Bradbury, 2005) and extends previous work that suggests that in the context of warm behavior the association between spouses' negative behavior and marital satisfaction decreases significantly (Fincham, 2003). Although the pattern of these findings is the same for both moderators, different mechanisms may underlie the reasoning behind why spousal warmth

moderates the association between hostility and change in wives' depressive symptoms. It is likely that husbands' displays of warmth toward their wives compensate for the effect their marital hostility has on increases in their wives' depressive symptoms. In contrast, fewer displays of warmth may magnify the presence of marital hostility and lead to increases in depressive symptoms over time. Wives who display warmth toward their husbands, even in the face of marital hostility, may have certain personality characteristics (e.g., extroversion) that in and of themselves help protect them from the negative influence of their husbands' hostility. Recent research on personality and marriage has shown there are significant links between spouses' personality characteristics and negativity in the marriage (Caughlin, Huston, & Houts, 2000), and thus, future research on spouses' well-being would benefit by including these variables.

Although more work is needed to best understand the association between marital hostility and depressive symptoms over time, the current findings provide some insight for clinical application. A recent review of clinical treatment models for comorbid marital distress and depression suggests that most clinical practice focuses on couples' communication styles or patterns (Mead, 2002). Our findings partially support this focus, particularly as it relates to wives' well-being, and we would suggest a more explicit focus on non-verbal communication as well, given that our measures of hostility and warmth incorporated both verbal and nonverbal communication. Our findings also point to the importance of recognizing the life events with which couples are coping (Karney & Bradbury, 2005). Couples should be made aware that stressors external to the marriage may put husbands at risk for increased depressive symptoms when their wives are hostile toward them, thus potentially necessitating behavioral changes within the marriage. Our results show that marital warmth is a protective factor for wives and encouraging both spouses to regularly display warmth may benefit wives' well-being. It is important to note that our finding regarding the moderating role of wives' own marital warmth in the association between husbands' hostility and changes in wives' depressive symptoms warrants replication. It appears that wives' warmth may be a protective factor for their well-being, but it is not possible to conclude from this study if this buffering effect could sustain itself over all stages of a marriage.

Study Limitations

Although this study had numerous strengths, including the use of multiple reporters and a large sample of couples at similar points in the life course, general study limitations must be considered. The sample used in the present study is predominately White and middle-class, and it is unknown if the findings of this study would translate to more ethnically or economically diverse samples. This issue is particularly salient for studies using observational ratings, as virtually no research has explored potential ethical considerations of observational research when studying ethnic groups other than European Americans. Further, given the emphasis on contextual variables in the present models, it is quite likely that more ethnically or economically diverse couples would be influenced by additional or alternative variables (Karney & Bradbury, 2005). Lastly, our use of a checklist measure of recent life events is limited in that such measures do not assess the extent of severity of the events or the level of stress they may produce (Dohrenwend, 2006; Wethington, Brown, & Kesler, 1995). Such information would bolster our understanding of the moderating role of life events in the association between marital hostility and change in spouses' depressive symptoms.

CONCLUSION

Research on the links between marriage and spouses' depressive symptoms has been hampered by a lack of attention to the contexts in which marital exchanges occur. The current study found support for the association between marital hostility and change in wives' depressive symptoms and draws attention to the contextual factors that both ameliorate and amplify this link. This study also found support for the association between wives' marital hostility and increases in husbands' depressive symptoms under conditions of higher life events. Future research should address additional contextual factors that might influence the association between marital interaction and spouses' depressive symptoms, as well as examine other components of well-being, such as physical health. Efforts towards increasing the depth of our knowledge in this area will result in a body of research that better unveils the complexities of marital relationships, the contexts in which they are situated, and the ways in which both factors are related to spouses' well-being.

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