

## Hostility in Marital Dyads: Associations with Depressive Symptoms

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*We examined the relations of hostility (of self and spouse) with self-ratings of depressive symptoms in 898 spouse pairs. Self-ratings of hostility were initially examined as predictors of depression. Next, spouse self-ratings of hostility were added to the model. Finally, the interaction of self  $\times$  spouse hostility was investigated. These relations were explored for three components of hostility (Cynicism, Aggressive Responding, and Hostile Affect). Age and education were controlled in all models and effects were examined separately for women and men. Self-ratings of Hostile Affect were positively related to depressive symptoms for both women and men. Self-ratings of Cynicism were also significantly related to depression, but only for men. All three components of spouse's hostility were positively related to one's own symptoms of depression for women. For men, however, spouse's hostility was not related to symptoms of depression. These findings highlight the need to study psychosocial risk factors in social units and have potential implications for intervention.*

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**KEY WORDS:** hostility; symptoms of depression.

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## INTRODUCTION

Evidence has accumulated indicating that depression and trait hostility are risk factors for coronary heart disease (CHD) (Barefoot, 1998; Barefoot *et al.*, 1995a). Results of several studies have shown that these psychosocial risk factors are highly related (Barefoot *et al.*, 1995b; Brummett *et al.*, 1998a; Williams *et al.*, 1997). The strong relation between depression and hostility, combined with the fact that both of these constructs are associated with health and well-being, indicates that it is important to understand fully the nature of their interrelation.

Recently researchers have begun to stress the importance of studying person  $\times$  environment interactions, in part because environmental context is likely to shape the effect that personality may have on the outcomes of social interactions (Gallo and Smith, 1999). Thus, examination of the association between depression and hostility within the social context of a marital relationship may be appropriate. To date little is known about the effect of spousal hostility on one's own symptoms of depression; however, results of related research in marital dyads indicate that this is indeed a useful setting for exploration of the links between personality and well-being. For example, Smith and colleagues (1990) have shown that the presence of one hostile person in a marital dyad leads to increased negative reactions during conflict. Other results suggest that a husband's hostility may be associated with poorer marital quality for both husband and wife (Newton and Kiecolt-Glaser, 1995). Thus, information regarding the relation between depression and hostility within marital dyads is likely to provide a more complete picture of the nature of their association, especially as it pertains to psychosocial well-being in married individuals.

Both depression (Sorenson *et al.*, 1991) and hostility (Barefoot *et al.*, 1991) have been associated with gender differences. Furthermore, previous research indicates that hostility affects marital distress but that these effects may be different for husbands and wives (Houston and Kelley, 1989; Smith *et al.*, 1988). Thus, the study of these two constructs in couples may also offer the opportunity to explore the effect of gender as a potential moderator of their association.

Hostility, as referred to in the present study, is conceptualized as a multifaceted construct consisting of the following components: cynicism, aggressive responding, and hostile affect (Barefoot *et al.*, 1989). Previous research has shown that it may be beneficial to explore the associations between each of these components separately, as their correlates may vary (Brummett *et al.*, 1998b). Thus, it would be of interest to know whether or not these components of hostility are differentially related to depression.

The present research has the following four goals: (1) to replicate previous findings showing that one's own level of hostility is positively associated with self-ratings of depression, (2) to extend these findings by examining this relation across three components of hostility, (3) to explore whether or not marital partner levels of hostility predict one's own symptoms of depression, and, finally, (4) to examine these questions separately for men and for women. Age and education were controlled in all analyses.

## METHODS

### Sample

Data were obtained from the UNC Alumni Heart Study (UNCAHS)—an ongoing prospective study of CHD and CHD risk (Siegler *et al.*, 1992a, b). In 1986–1987, members (82.66% men and 17.30% women) of the entering classes of 1964–1966 at the University of North Carolina at Chapel Hill (UNC) who had taken the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKinley, 1943) upon admission were located and invited to join the study. This sample reflected the sociodemographic characteristics of the UNC student population in the 1960s, *i.e.*, it consisted of primarily male Caucasians, with minority enrollment less than 1%. Follow-up questionnaires were mailed to UNCAHS participants at 12- to 18-month intervals. At the time of the third follow-up (1988–1991) respondents were asked for permission to enroll their spouses into the study. In July 1992, 89% (1153) of those who requested the questionnaire returned it and were enrolled in the study. The present investigation included 898 spouse pairs (*i.e.*, 736 male UNCAHS participants and their enrolled spouses and 162 female UNCAHS participants and their enrolled spouses) who participated through the sixth follow-up of the study (1995), remained married to the same spouse during that time period, and had complete data for all variables of interest.

### Measures

Self-rated hostility data were taken from the second UNCAHS questionnaire (1988–1989). For the newly enrolled spouses, their self ratings of hostility came from the Spouse Enrollment Questionnaire (1992–1993). Depression was assessed in the sixth questionnaire (1995–1996) for all participants.

*Hostility.* Hostility was measured using an abbreviated version of the Cook–Medley Hostility Scale (Cook and Medley, 1954). A rational analysis

of item content (Barefoot *et al.*, 1989) led to the refinement of the full scale down to the 27-item shortened scale, which has been a better predictor of health outcomes than the full scale in some studies (Barefoot *et al.*, 1989; Helmers *et al.*, 1993). The 27-item scale contains the following three item subsets: (1) Cynicism—cynical beliefs about the nature of people in general; (2) Hostile Affect—admissions of negative emotions in relation to others; and (3) Aggressive Responding—tendency to use or approve of aggression as a way of dealing with problems. Higher scores reflect greater levels of trait hostility. The 27-item scale was used to assess hostility for all participants in the present study.

*Depression.* The Center for Epidemiologic Studies Depression Scale (Radloff, 1977) is a 20-item self-report scale designed to measure depressive symptomatology in the general population. Items refer to symptoms experienced during the prior week and are scored on a 4-point scale, with the total score ranging between 0 and 60. Higher scores represent depressive responses and a score of 16 or greater is generally considered suggestive of a depressive disorder. Measures of internal consistency for the CES-D are acceptable, with  $\alpha$  coefficients of .85 in a general population sample and test–retest correlations ranging between .45 and .70 (Radloff, 1977).

*Education.* Educational attainment was classified by the years of education completed and reported in the following categories: (1) high school graduate; (2) some college, no degree; (3) junior or technical college; (4) college degree only; (5) college degree + training; (6) master's degree; and (7) doctoral degree. Table I provides a distribution of the sample characteristics with respect to education.

**Table I.** Means or Distributions by Gender and Within-Couple Correlations

Measure ( <i>N</i> = 898 spouse pairs)	Women ( <i>N</i> = 162)	Men ( <i>N</i> = 736)	Within-couple correlation
Age (at testing, mean)	42.8 ± 1.6	43.7 ± 3.2	.19
Education, highest degree (%)			.33
Less than college	24.2	7.0	
College degree	45.6	39.1	
Master's degree	23.8	24.3	
Doctoral degree	6.4	29.6	
Cook–Medley			
Cynicism (mean)	3.7 ± 2.7	3.8 ± 2.6	.19
Hostile affect (mean)	1.8 ± 1.3	1.8 ± 1.3	.09
Aggress. Resp. (mean)	2.9 ± 1.7	3.0 ± 1.6	.07
CES-D (mean)	8.3 ± 7.9	7.6 ± 7.2	.23

*Note.* Correlation for Education is a phi coefficient and the remaining correlations are Spearman coefficients; all correlations are significant at  $p < .05$ .

## Statistical Analyses

Separate regression models were estimated for the three subscales of hostility (Cynicism, Aggressive Responding, and Hostile Affect) to examine their associations with symptoms of depression. One set of analyses regressed depression ratings on the participant's self-rating of hostility. Additional analyses regressed depression scores on the spouse's self-ratings of hostility, along with the participant's own hostility score, in order to estimate the effect of spousal hostility while controlling for a measure of the participant's own hostility level. A final set of analyses regressed depression scores on self-hostility ratings, spouse hostility ratings, and a self  $\times$  spouse hostility interaction term, in order to examine potential multiplicative effects of self and spouse hostility.

All models included the participant's age and education level. In addition, each model was computed separately for men and women. For all analyses  $p < .05$  was considered statistically significant. Analyses predicting depression scores for the spousal enrollment participants were not conducted due to the confound for timing of assessment (i.e., order of hostility assessment would be reversed in time for spouse and partner).

## RESULTS

### Means and Within-Couple Correlations

Table I provides the mean level (or proportion where appropriate) for all measures by gender, along with the within-couple correlation among the study variables. The means for the hostility subscales were comparable to those previously reported in similar samples (Scherwitz *et al.*, 1991). Likewise, the CES-D mean values were within the expected range according to published norms, as was the percent of the UNCAHS classified as depressed (i.e., 11.1% CES-D  $\geq 16$ ) (Radloff, 1977). All of the within-couple correlations reached the 5% level of statistical significance.

### Hostility and Symptoms of Depression

For both women and men, self-ratings of Hostile Affect were positively related to depressive symptoms. For men only, self-ratings of Cynicism were also significantly related to symptoms of depression. All three components of spouse's hostility were positively related to one's own symptoms of depression for women. For men, however, spouse's ratings of hostility

were not related to one's own symptoms of depression. These results are presented in Table II. Finally, all self  $\times$  spouse hostility interaction terms were nonsignificant (all  $p$ 's  $>$  .10).

## DISCUSSION

Findings from the present study replicate previous research indicating that hostile individuals experience greater levels of depressive affect. Moreover, our results suggest that the associations between hostility (self and spouse's) and depression may vary, depending on which component of hostility is assessed and on the gender of the individual. Thus, the present results point to the importance of studying complex interactions between the individual and their environment, as social context may impact personality–health associations by influencing many facets of individual behavior patterns.

Hostile Affect was the component of self-rated hostility that most strongly affected well-being for both women and men. As the name would imply, perhaps this component of hostility is most closely related to emotional responding and therefore might be expected to show the closest link to an emotional state such as depression. With respect to cynicism, previous research has shown that men tend to have higher self-ratings than do women (Barefoot *et al.*, 1991; Scherwitz *et al.*, 1991). In conjunction with Hostile Affect, a cynical outlook also had a significant relation to depression scores for men in the present study. However, the absence of the relation between cynicism and depression in women in the current sample is likely to be an anomaly, given that such a pattern was not observed in a national sample of 2600 individuals (Barefoot *et al.*, 1995b).

Within the context of close relationships, the presence of a hostile individual is likely to create higher conflict and lower levels of social support (Smith *et al.*, 1990). Over time, this negative social environment may lead to feelings of distress or depression. The current results indicate that for women the negative attitudes and affect of a hostile husband, either directly or indirectly, generate negative affect in themselves. It is also of note that the effects of husband's hostility were significant while controlling for a measure of one's own level of hostility. This pattern of results was not found for men in the present study, but is consistent with other research showing that women's reported satisfaction with their relationships, compared to men's, is more affected by spouse's hostility (Gaelick *et al.*, 1985; Newton and Kiecolt-Glaser, 1995). Some have also noted that for women it is the quality of relationships that has the strongest impact on well-being,

**Table II.** The Association of Hostility Subscales with Depression

Hostility subscale	Women			Men				
	Incremental $R^2$	$b$	( $\beta$ )	$p$	Incremental $R^2$	$b$	( $\beta$ )	$p$
Cynicism								
Self	.002	-.09	(-.03)	.712	0.040	.54	(.19)	.001
Spouse	.041	.62	(.21)	.010	.000	.01	(.01)	.874
Hostile affect.								
Self	.029	.98	(.17)	.036	.055	1.26	(.23)	.001
Spouse	.076	1.50	(.27)	.001	.002	.24	(.04)	.251
Aggres. Respond.								
Self	.007	.36	(.08)	.332	.003	.14	(.03)	.405
Spouse	.031	.85	(.18)	.028	.001	-.26	(-.04)	.338

*Note.* Age and education were controlled in the above models; however, they were not significantly associated with symptoms of depression, i.e., all  $p$ 's > .10. Also, self-ratings of hostility were controlled in models using spouse ratings of hostility as predictors of depression.

whereas for men it is the existence, and not the quality, of close relationships that is important (Newton and Kiecolt-Glaser, 1995).

Related research also suggests that women appear to experience greater and more lasting physiological change in the context of marital conflict, compared to men (Ewart *et al.*, 1991; Kiecolt-Glaser *et al.*, 1996). Thus, compared to men, women not only may be more emotionally responsive to psychosocial factors in a marriage, but also may be more physiologically responsive as well. Given that we found the association of spousal hostility and emotional well-being in women, it is possible that the emotional responses to spousal hostility experienced by women may influence their heightened physiological reactions in the marital context. Indeed, recent research suggests that husband's hostility level may negatively impact their wives' physiological reactivity during conflict, whereas husband's reactivity does not appear to be influenced by their wives' hostility level (Smith and Brown, 1991; Smith and Gallo, 1999).

The present results replicate previous findings indicating that hostility and depression are closely related constructs that appear to be concentrated in certain segments of the population (Barefoot *et al.*, 1995b; Brummett *et al.*, 1998; Williams *et al.*, 1997). The implications surrounding this notion are important because hostility (Barefoot *et al.*, 1995a; Smith and Gallo, 2000), and depression (Barefoot, 1998; Frasure-Smith *et al.*, 1993) have both been repeatedly linked to the course of CHD. In addition, current findings indicate that psychosocial factors may act in concert to increase the risk of those individuals who possess more than one (Kaplan, 1995), further highlighting the need for understanding such interrelations.

Results of several studies find significant spousal similarities with respect to psychosocial risk factors and behavioral indices (Haynes *et al.*, 1983; Knutsen and Knutsen, 1990; Musante *et al.*, 1990). In the present study the within-couple correlations for ratings of hostility and depressive affect were all significant, albeit modest. Longitudinal research in this area suggests that individuals chose to marry others who are like one's self with respect to personality and psychological well-being and fail to find support for the notion that spouses grow more similar over time (Caspi and Herberner, 1993; duFort *et al.*, 1994; Feng and Baker, 1994).

It is important to note that there are several limitations regarding the present findings. Hostility was not assessed at the same time for participants and their spouses. Thus, the addition of spouse's hostility (assessed in 1992) to a model containing the participant's self-rated hostility (assessed in 1988) may be confounded by the timing of assessment. However, research has shown that assessments of hostility are stable during midlife (Shekelle *et al.*, 1983), that hostility is generally referred to as a trait construct (Miller *et al.*, 1996; Smith and Gallo, 2000), and furthermore, it would be difficult

to attribute the present pattern of results to an effect of timing of assessment. Another drawback with respect to the present findings concerns the lack of sufficient data to explore more complex hypotheses regarding causal relationships, such as bidirectional influences of hostility and depression, or potential confounding of both hostility and depression with some unknown third factor. It is also possible that the size of the correlations observed in the present study were inflated by common method variance (e.g., response style). In addition, the UNCAHS sample is fairly homogeneous with respect to age, race, and socioeconomic status, thus our results may not apply to other more diverse populations.

Another potential concern with respect to the current results involves the limited assessment of depression (Ingram and Hamilton, 1999; Tennen *et al.*, 1999). Specifically, depression scores were restricted to self-report ratings, therefore the results reported in this study may not generalize to instances where depression is clinically assessed. Furthermore, it has been noted that is important to include history of depression when exploring other psychosocial factors that may influence the outcome of present depression (e.g., Tennen *et al.*, 1999). Given the design of the UNCAHS (self-report mail survey) we do not have access to reliable information regarding a prior diagnosis of depression.

To summarize, the present findings suggest that for both women and men certain aspects of one's hostility may have an impact on depressive symptoms. Furthermore, for women a hostile spouse may also contribute to one's emotional distress. At present, the incidence of cardiovascular disease in this cohort is insufficient to test the role that spousal characteristics may play with respect to CHD outcomes but future data collected in this sample may permit such analyses. However, these results do indicate that hostility levels may have important health implications due to previously reported associations among hostility, depression, and CHD. Finally, the present findings also may bear on prevention strategies and behavioral interventions. Given the reciprocal nature of close relationships, interventions aimed at decreasing hostility levels in spouse pairs may lead to decreased depression for both members of a marital dyad.

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