

## Infidelity and Separations Precipitate Major Depressive Episodes and Symptoms of Nonspecific Depression and Anxiety

Annamarie Cano and K. Daniel O'Leary  
State University of New York at Stony Brook

This study examined whether humiliating marital events (HMEs; husbands' infidelity, threats of marital dissolution) precipitated Major Depressive Episodes (MDEs) when controlling for marital discord. Participants were 25 women who recently experienced an HME and 25 control women who did not experience an HME. Both groups reported similar levels of marital discord. Results indicated that HME participants were 6 times more likely to be diagnosed with an MDE than control participants. These results remained even after controlling for family and lifetime histories of depression. HME participants also reported significantly more symptoms of nonspecific depression and anxiety than control participants. However, HME and control participants did not report significantly different numbers of anhedonic depression and anxious arousal symptoms. The research and clinical implications of these findings are discussed.

Research has shown that negative life events are strongly associated with depression in women (Kendler, Neale, Kessler, Heath, & Eaves, 1992) and that these negative life events appear to influence the risk of Major Depressive Episodes (MDEs) independent of genetic predisposition (Kendler et al., 1995). One type of negative life event, the negative event in marriage, has received an increasing amount of empirical support as a precipitator of depression in women (e.g., Brown, Harris, & Hepworth, 1995; Christian-Herman, O'Leary, & Avery-Leaf, in press). However, questions remain. Few researchers have examined whether negative marital events such as infidelity and threats of marital dissolution precipitate depression when controlling for the impact of marital discord, other negative life events, lifetime history of depression, and a family history of depression. Furthermore, little is known regarding the types of depressive symptoms that are precipitated by negative events in marriage.

Coyne (1976) was one of the first researchers to view depression as a functional reaction to a disruption in one's social and interpersonal relationships. According to Coyne (1976), depressive behaviors function to solicit support and comfort from close others. More recently, Coyne and Downey (1991) stated that stressors in interpersonal relationships including marriage may be the most common precipitators of depression because they involve increased conflict, declining communication, and a lack of stability, each of which results in reduced social support. Similarly, Beach, Sandeen, & O'Leary's (1990) Marital Discord Model of Depres-

sion posits that marital discord is associated with a lack of couple cohesion, disruption of scripted routines between spouses, and loss of spousal support and coping assistance, all of which contribute to depression. Self-in-relation theory suggests that women in particular may be sensitive to marital disruptions or dissolutions because they derive a sense of well-being from their roles in intimate relationships with others (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991). According to this theory, a divorce or other negative events centered in the marital relationship are likely to precipitate feelings of shame and depression (Kaplan, 1991).

Empirical research has provided support for these theories. Paykel et al.'s (1969) seminal study on life events and depression demonstrated that marital separations and arguments were reported more frequently by depressed patients than by community control participants in the 6 months before interview. More recent research has continued to demonstrate a significant association between marital problems and depression (e.g., Aseltine & Kessler, 1993; Brown & Harris, 1978, 1989; Christian-Herman et al., in press; Coryell, Endicott, & Keller, 1992; Weissman, 1987; Whisman & Bruce, 1999). For instance, a large-scale community study demonstrated that women who separated or divorced during a 3-year period reported more depressive symptoms than women who remained married, even when controlling for baseline depressive symptoms (Aseltine & Kessler, 1993). Another large study involving the relatives and spouses of depressed individuals as well as controls found that participants who separated or divorced during a 6-year period were three times more likely to report a first onset of major depression within the same period than participants who remained married (Coryell et al., 1992). This result was stronger for women than for men; separated or divorced women were approximately four times more likely to be depressed than women who remained married. Most of these onsets of depression occurred at approximately the time of the separation or divorce.

Until recently, investigators have limited their conceptualization of negative marital events to separation and divorce. However, Christian-Herman et al. (in press) examined the relationship between a variety of wife- and husband-initiated negative marital

---

Annamarie Cano and K. Daniel O'Leary, Department of Psychology, State University of New York at Stony Brook.

This research was conducted in partial fulfillment of Annmarie Cano's doctoral degree at the State University of New York at Stony Brook. We thank Shari Feldbau-Kohn and Hope Nevala for their assistance on this project.

Correspondence concerning this article should be addressed to Annmarie Cano, who is now at the Department of Psychology, Eastern Michigan University, Ypsilanti, Michigan 48197. Electronic mail may be sent to acano@ONLINE.EMICH.EDU.

events (e.g., infidelity, threats of divorce, discrete episodes of violence) and the incidence of MDEs within a sample of women. None of the participants had a lifetime history of depression. The incidence of MDEs within 4 weeks following the negative marital event was 38%. This incidence rate is considerably higher than the 1.80–2.09% annual incidence rate of depression in similarly aged women in epidemiological samples (Eaton et al., 1989; Lewinsohn, Duncan, Stanton, & Hautzinger, 1986), demonstrating the significant impact of diverse negative marital events.

Brown et al. (1995) examined the impact of a number of negative relationship-oriented events that were considered to be humiliating in nature. Humiliation events are life events that devalue the individual in relation to the self or others. They found that 31% of humiliation events were followed by an onset of depression in a sample of community women. Most of these humiliation events occurred within the marital relationship. Specifically, the discovery of a husband's infidelity, a husband-initiated separation or divorce, and a wife-initiated separation or divorce due to infidelity, marked violence by the husband, or both, were among the life events that were classified as humiliation events by Brown et al.'s life event coding system. Brown et al. found that humiliation events were more likely to precipitate a depressive episode than nonhumiliating events that were initiated by the participants (e.g., a wife-initiated separation or divorce that did not follow a husband's infidelity or violence).

It appears that a variety of negative marital events, especially those involving humiliation or devaluation, precipitate MDEs. However, several issues have continued to be sources of controversy concerning the actual impact of negative marital events. First, we do not know if negative events in marriage lead to depression over and above the effects of general marital discord. Cross-sectional and longitudinal studies of community and marital clinic husbands and wives have shown that marital discord is associated with or predicts depressive symptoms (Christian, O'Leary, & Vivian, 1994; Christian-Herman et al., in press; Fincham, Beach, Harold, & Osborne, 1997; O'Leary, Christian, & Mendell, 1994). Whisman and Bruce (1999) also found that marital distress is associated with the incidence of major depression. Evidence from the treatment literature provides further support for the association between marital discord and depression (Beach & O'Leary, 1992; Emanuels-Zuurveen & Emmelkamp, 1996; Jacobson, Dobson, Fruzzetti, Schmaling, & Salusky, 1991; O'Leary & Beach, 1990). Specifically, marital therapy alleviates both marital discord and depression in married women. Despite the strong evidence for a significant association between marital discord and depressive symptoms, studies examining negative marital events as precipitators of depression have not controlled for the effects of marital discord. It is possible that marital discord is associated with MDEs and that the effect of a humiliating marital event (HME) over and above the marital discord is negligible. The current study addresses this question by recruiting an HME group and a control group with similar levels of marital discord. This methodology will help determine whether HMEs precipitate depression over and above the effects of marital discord.

Second, few studies have controlled for the existence of other life events that may have precipitated depression (e.g., Christian-Herman et al., in press; Kendler, Kessler, Neale, Heath, & Eaves, 1993; Kendler et al., 1995). The current study will address this potential limitation by excluding from the study those individuals

who have experienced negative life events other than the HME within 6 months prior to contact. A 6-month period was chosen as the criterion because researchers have found that the adverse impact of negative life events on psychological well-being appears to be limited to this amount of time (e.g., Brown et al., 1995).

Similarly, most negative marital event researchers have not assessed or controlled for the participants' lifetime histories of depression, their family histories of depression or both (Aseltine & Kessler, 1993; Christian-Herman et al., in press; Paykel et al., 1969). One exception is Kendler et al. (1995), who found significant main effects for serious marital problems, divorce, and for genetic liability as assessed by the twin's diagnosis of depression. The researchers also controlled for participants' lifetime history of depression. Brown et al. (1995) also examined lifetime history of depression but limited their comparisons to patients with and without certain types of symptoms and a previous episode of depression, limiting conclusions regarding lifetime history alone. Nonetheless, both groups experienced similar rates of negative life events prior to becoming depressed. Neglecting to control for lifetime and family histories of depression leaves the impact of negative marital events open to question. The current study will assess and statistically control for lifetime and family histories of depression in order to strengthen the internal validity of this study.

Fourth, there have been inconsistencies across studies in the conceptualization of negative marital events. For instance, researchers have used terminology such as "serious marital problems" (e.g., Kendler et al., 1995; Weissman, 1987), implying ongoing or chronic marital stressors. However, life events researchers (e.g., Wheaton, 1994) have argued that discrete life events may differ from daily hassles or chronic stressors in terms of quality and impact. Researchers have also restricted the definition of HMEs to instances of separation and divorce (e.g., Aseltine & Kessler, 1993; Coryell et al., 1992). However, Brown et al.'s (1995) work suggests that specific negative marital events, namely humiliation events, are particularly robust precipitators of depression. Following these conceptualizations, the current study investigates the rates of major depression and psychological symptoms in women who have and have not experienced negative and discrete marital stressors that are devaluing or humiliating in nature.

### Anhedonia Versus General Distress

Although researchers have investigated the rates of major depression or the numbers of depressive symptoms following negative events in marriage, researchers have seldom examined the types of depressive symptoms that are precipitated by these events. Following a review of the literature, Clark and Watson (1991) argued that some psychological symptoms (e.g., disappointment, self-blame) are common to both depression and anxiety, whereas others are depression- or anxiety-specific. They developed the tripartite model of depression and anxiety, which states that general distress or negative affect are common to both depression and anxiety. In addition, Clark and Watson maintained that anhedonia and a lack of positive affect are specific to depression, whereas anxious arousal or physiological hyperarousal is specific to anxiety. Clark, Watson, and colleagues found support for this model in several studies involving students, adults, and patients who completed the Mood and Anxiety Symptom Questionnaire (MASQ;

Watson & Clark, 1991; see also Watson, Clark, et al., 1995; Watson, Weber, et al., 1995). The current study uses Watson and Clark's (1991) MASQ in order to determine whether HMEs precipitate nonspecific general distress and depression-specific symptoms of anhedonia. This approach to studying the impact of HMEs may provide researchers and clinicians with a better understanding of the types of post-HME psychological symptoms.

## Method

### Participants

**HME group.** The HME group consisted of 25 women who experienced one of the following HMEs within 2 months of phone contact with the principal investigator: (a) discovery of husband's infidelity, (b) husband's initiation or completion of a separation or divorce, or (c) separation or divorce from a husband as a result of his infidelity or marked violence. As noted earlier, these conditions are defined by Brown et al. (1995) as humiliation events. In the current study, 44% ( $n = 11$ ) of the HME group discovered a husband's infidelity, 36% ( $n = 9$ ) experienced husband-initiated separation, and 20% ( $n = 5$ ) became separated following a husband's infidelity or marked physical violence.

Exclusionary criteria included a diagnosis of major depression within the 2 months prior to the HME (as assessed by a phone screen and again with a structured in-person interview) or experiencing any one or more of the following negative life events derived from the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) within the 6 months prior to phone contact: death of a close family member, personal injury or illness resulting in a loss of work for 2 weeks or more, being fired from a job, being arrested or spending time in jail, or miscarriage. Chronic life stressors (e.g., substance dependence of the spouse, child running away) were also probed for and included in the exclusionary criteria.

**Maritally discordant control group.** The control group consisted of 25 married women who did not experience HMEs within 6 months prior to phone contact with the investigator. The control group was necessary to determine whether HMEs (not marital discord) precipitate MDE. The control group was recruited to have similar marital discord to the HME group. Exclusionary criteria included experiencing one or more of the previously stated negative life events or negative marital events (HMEs or nonhumiliating marital events) within the past 6 months.

A total of 96% ( $n = 48$ ) of participants were Caucasian, and 4% ( $n = 2$ ) were Hispanic/Latina, which is representative of the suburban New York metropolitan area in which the study was conducted. Table 1 displays demographic variables for the HME and control groups. No significant differences were indicated by  $t$  tests between groups on age, years married, education completed, and number of children ( $ps > .20$ ). Unequal variances were suspected in terms of family income,  $F_{\max}(1, 42) = 4.63, p < .05$ .<sup>1</sup> Levene's test for equality of variances confirmed heterogeneity,  $F(1, 42) = 6.13, p < .05$ . However, the  $t$  test for mean differences taking into account unequal variances did not yield a significant group difference on mean family income,  $t(31.69) = 1.39, p > .17$ .

Of the HME group, 48% ( $n = 12$ ) held at least part-time work outside the home, whereas 76% of the control group ( $n = 19$ ) worked at least part-time outside the home. A chi-square analysis indicated that this difference was significant,  $\chi^2(1, N = 50) = 4.16, p < .05$ . All further group difference analyses controlled for work status in order to account for the possibility that differences in work status might contribute to differences in the rates of depression.

### Measures

**Dyadic Adjustment Scale (DAS; Spanier, 1976).** The DAS is a 32-item measure of marital satisfaction that has been widely used in the marital literature. The DAS correlates highly with other measures of marital

Table 1  
*Means and Standard Deviations of Demographic Variables for HME and Control Groups*

Variable	Group	
	HME	Control
Age		
<i>M</i>	41.16	40.58
<i>SD</i>	9.37	8.04
Years married		
<i>M</i>	12.55	13.72
<i>SD</i>	9.67	11.26
Education completed		
<i>M</i>	14.24	15.00
<i>SD</i>	2.57	2.42
Family income <sup>a</sup>		
<i>M</i>	\$82,174	\$63,810
<i>SD</i>	\$56,882	\$26,436
No. of children		
<i>M</i>	2.04	1.80
<i>SD</i>	1.34	1.23

*Note.* For each group in all analyses,  $n = 25$ , except for income, where  $n = 23$  for the HME group and  $n = 21$  for the control group. Education was measured in years. HME = humiliating marital event.

<sup>a</sup>Levene's test indicates unequal variances,  $F(1, 42) = 6.13, p < .05$ ; however, the  $t$  test controlling for unequal variance does not indicate a significant group mean difference,  $t(31.69) = 1.39, p > .17$ .

satisfaction (e.g., Locke-Wallace Marital Adjustment Scale) and significantly discriminates between married and divorced spouses (Spanier, 1976). Lower scores on this measure indicate greater marital discord (i.e., marital dissatisfaction). Marital research studies have used scores of less than 100 to indicate marital discord (e.g., O'Leary & Beach, 1990; Sher & Baucom, 1993). The HME and control groups both scored substantially lower than this cutoff score (HME group:  $M = 75.15, SD = 21.40$ ; control group:  $M = 85.86, SD = 24.53$ ), and on average, both groups would be considered discordant. Internal consistency was good in the current study ( $\alpha = .94$ ). The HME participants were also asked to estimate their global marital satisfaction 6 weeks prior to the HME on Item 31 of the DAS. Possible answers on Item 31 range from 0 (*extremely unhappy*) to 6 (*perfectly happy*), with 3 being the midpoint of the scale. The mean rating was 1.94 ( $SD = 1.61$ ).

**MASQ.** The MASQ was developed by Watson and Clark (1991) to address problematic issues in self-report measures of depressive and anxiety symptoms. The current study used the 62-item version of the MASQ that contains four subscales: Nonspecific Depression, Nonspecific Anxiety, Anhedonic Depression, and Anxious Arousal. The Nonspecific Depression subscale consists of 12 items that assess depressive symptoms commonly found in individuals with depression, anxiety, or both (e.g., disappointment, self-blame). The Nonspecific Anxiety subscale consists of 11 items that assess symptoms of anxiety commonly found in individuals with anxiety, depression, or both (e.g., inability to relax, upset stomach). The 22-item Anhedonic Depression subscale measures symptoms that are considered to be specific to depression (e.g., loss of interest, anhedonia), whereas the 17-item Anxious Arousal subscale consists of symptoms of somatic tension and hyperarousal that appear to be specific to anxiety (e.g., shortness of breath, shaking hands). In this study, interitem reliability coefficients (alphas) for the Nonspecific Depression, Nonspecific Anxiety,

<sup>1</sup>  $F_{\max}$  equals the ratio of the variance ( $SD^2$ ) in the HME group to the variance ( $SD^2$ ) in the control group. When  $F_{\max} > 3.00$ , testing for heterogeneity of variance is recommended (Keppel, 1989).

Anhedonic Depression, and Anxious Arousal subscales were .92, .84, .94, and .86, respectively.

**Structured clinical interview for the DSM-IV (SCID).** The MDE module of the SCID (First, Spitzer, Gibbon, & Williams, 1995) was administered to all HME and control group participants. The SCID is a valid diagnostic assessment instrument based on the *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; DSM-IV; American Psychiatric Association, 1994). The MDE module assesses the presence or absence of nine symptoms of depression. Five symptoms, at least one of which is depressed mood or loss of interest, are required for a diagnosis of an MDE. Participants in the HME group were asked to report on three different time periods: (a) current (post-HME), (b) 2 months prior to the HME, and (c) lifetime (excluding current and 2 months prior to HME). The control participants were asked to report on two different time periods: (a) current and (b) lifetime (excluding current). A total of 44% ( $n = 11$ ) of each group reported a lifetime history of MDE,  $\chi^2(1, N = 50) = 0.00, p = 1.00$ . We randomly chose 25% ( $n = 13$ ) of the interviews for lifetime history of depression and 25% ( $n = 13$ ) of the interviews for current depression for reliability checks by another interviewer who was blind to the group membership, diagnostic history, and current diagnostic status of the participants. Agreement was 92% on lifetime history of depression and 100% on current diagnostic status, indicating excellent reliability. In addition, 25% ( $n = 6$ ) of the interviews with HME participants were chosen for reliability checks of diagnoses within the 2 months prior to the HME. Again, agreement between interviewers was excellent (100%).

**Family history of depression questionnaire.** All participants were asked to indicate the number of first-degree relatives who had received psychotherapy or medications for depression, were hospitalized for depression, or had attempted or completed suicide. The purpose of this measure was to control for the established finding that a family history of depression increases one's vulnerability for major depression (e.g., Kendler, Davis, & Kessler, 1997). Participants' responses to each of the questions mentioned earlier were summed. The HME and control groups reported means of 1.04 ( $SD = 1.86$ ) and 0.60 ( $SD = 1.04$ ), respectively. Levene's test indicated unequal variances,  $F(1, 48) = 8.37, p < .01$ ; however, a  $t$  test for mean differences taking into account unequal variances showed that group means were not significantly different,  $t(37.70) = 1.03, p > .30$ .

### Procedure

The study was advertised through local community newspapers and direct mail fliers announcing a research project for women experiencing marital problems. A total of 241 women responded to the advertisements. All callers were administered a brief screening that asked about the presence or absence of recent HMEs, other life events including nonhumiliating negative marital events (as described earlier), and episodes of depression. Callers who identified an HME within 2 months prior to calling, denied the occurrence of other life events within 6 months, and denied a recent depressive episode were assigned to the HME group. Callers who denied HMEs as well as other life events within 6 months were also asked to provide a global rating of marital discord as assessed by Item 31 on the DAS. Those callers who reported similar levels of marital discord to the HME participants were assigned to the maritally discordant control group. A  $t$  test confirmed that the control group reported a mean global marital satisfaction score of 2.24 ( $SD = 1.55$ ) during the phone screen, which was not significantly different from the mean reported by the HME group ( $M = 1.88, SD = 1.42, t(48) = -.87, p > .38$ ).

In each group, 25 callers were eligible and participated. Once participants were deemed eligible, they were mailed a consent form and a questionnaire packet containing the MASQ, DAS, and Family History of Depression Questionnaire and were scheduled for an in-person, audiotaped interview. The interview assessment included the SCID and took place at the University Marital Clinic at a suburban university in the metropolitan New York area. Participants were paid upon completion of the consent form, questionnaires, and interview.

Table 2

Percentage of Study Participants Diagnosed With a Major Depressive Episode (MDE)

Diagnosis of MDE	Group	
	HME	Control
Present <sup>a</sup>		
%	72	12
<i>n</i>	18	3
Absent		
%	28	88
<i>n</i>	7	22

Note. For each group,  $n = 25$ . HME = humiliating marital event.

<sup>a</sup>  $F(1, 47) = 25.43, p < .0001$ .

## Results

### HMEs and MDEs

An analysis of covariance (ANCOVA) was performed to determine whether the HME group experienced more MDEs than the control group after adjusting for the effect of covariates.<sup>2</sup> Work status was chosen as a covariate based on the significant group difference on this variable. Family history of depression and lifetime history of depression were examined as possible covariates through  $t$  test and chi-square analyses because of the vast literature showing the association between these variables and episodes of depression. Although HME and control groups reported similar levels of family history and lifetime histories of depression, it is conceivable that these two variables are associated with depression within each group. Family history of depression was not associated with MDEs in the HME or control groups,  $t_s(23) = .17$  and  $-.12$ , respectively,  $p_s > .85$ . Similarly, lifetime history was not associated with MDEs in the HME or control groups,  $\chi^2_s(1, N = 25) = 0.94$  and  $0.71$ , respectively,  $p_s > .40$ . Therefore the only covariate included in the ANCOVA was work status.

A total of 72% ( $n = 18$ ) of the HME group, as compared with 12% ( $n = 3$ ) of the control group, were diagnosed with an MDE at interview (see Table 2). An ANCOVA showed that this group difference was significant,  $F(1, 47) = 25.43, p < .0001$ , after adjusting for the effects of work status, which was a nonsignificant covariate,  $F(1, 47) = 0.00, p > .90$ . Further analyses were conducted to determine whether the nonsignificance of work status was due to its association with MDEs in only one of the groups. The analyses yielded nonsignificant results for the HME group,  $\chi^2(1, N = 25) = 1.47, p > .20$ , and marginal results for the control group,  $\chi^2(1, N = 25) = 3.42, p < .07$ . However, this latter result appears to be due to the fact that for three of the four cells,  $n < 5$ . Gravetter and Wallnau (1996) noted that this situation can severely distort the chi-square statistic. Each of the three types of humili-

<sup>2</sup> Although logit or chi-square analyses are often used to examine the relationship between two categorical or discrete variables, ANCOVA was chosen because we wanted to be able to include covariates in the analysis. In addition, analysis of variance (ANOVA) techniques tend to produce similar results to logit analyses when the dependent variable has two categories and there is no more than a 25–75% split between responses (Goodman, 1978). This is the case in the current study.

ation events were equally likely to precipitate MDEs,  $\chi^2(2, N = 25) = 0.45, p > .50$ .

The HME Group was marginally more maritally discordant than the control group at Time 1 when using the full-scale DAS,  $t(48) = -1.65, p < .11$ . Although this difference did not reach significance, the ANCOVA was rerun with the full-scale DAS as a covariate in order to determine whether the significant group difference on MDEs was due, in part, to this marginal difference. DAS was not a significant covariate,  $F(1, 47) = 0.04, p > .80$ , and the significant group difference remained,  $F(1, 47) = 25.63, p < .0001$ . Further analyses were conducted to determine whether the nonsignificance of DAS was due to its correlation with MDEs in only one of the groups. Analyses showed that DAS was not associated with MDEs within either group,  $p > .50$ .

Although the SCID revealed that none of the HME participants experienced an MDE within 2 months prior to the HME, it is possible that pre-HME subsyndromal depressive symptoms contributed to the high rate of depression diagnoses in this group. A paired-samples  $t$  test was conducted to rule out the possibility that subsyndromal depressive symptoms were present prior to the HME. One HME participant was excluded from the analyses because she had missing data on pre-HME SCID symptoms. HME participants reported a mean of 1.33 ( $SD = 1.74$ ) SCID symptoms within the 2 months prior to the occurrence of the HME. According to the *DSM-IV* (American Psychiatric Association, 1994), five symptoms are necessary to satisfy the criteria for MDE, whereas two symptoms are necessary to satisfy the research criteria for minor depressive disorder. Therefore, the number of symptoms reported by the HME participants prior to the event was not substantially elevated. The HME participants reported a mean of 5.04 ( $SD = 2.81$ ) post-HME SCID symptoms. The difference between pre- and post-HME symptoms was significant,  $t(23) = 5.29, p < .0001$ , providing additional evidence that the high rate of depression in the HME group was precipitated by the HMEs.

A similar analysis was conducted to examine the association between pre-HME marital satisfaction and MDEs in the HME group. As described earlier, HME participants were asked to estimate their global marital satisfaction on Item 31 of the DAS approximately 6 weeks before the occurrence of the HME. HME participants reported a mean of 1.94 ( $SD = 1.61$ ) prior to the HME and a mean of 1.88 ( $SD = 1.42$ ) post-HME. This difference was nonsignificant,  $t(24) = .15, p > .80$ , indicating that the HME participants were discordant both before and after the occurrence of the event. The combination of findings regarding discord and depressive symptoms prior to and after the HME indicate that the MDEs were most likely precipitated by the HME, not by prior depressive symptoms, marital discord, or both.

#### Group Differences on MASQ Subscales

ANCOVAs were performed to determine whether the HME group experienced more MASQ symptoms than the control group. Again, work status was chosen as a covariate in this analysis. Correlations between family history of depression and the four MASQ subscales were all nonsignificant for both groups,  $ps > .35$ . The only correlation that approached significance was between family history and nonspecific anxiety for the control group,  $r = -.32, p < .12$ ; however this correlation was not significantly

stronger for the control group than for the HME group,  $z = 1.18, p > .20$ . Similarly,  $t$  tests failed to show a significant relationship between a lifetime history of depression and the four MASQ subscales,  $ps > .50$ . Thus, only work status was chosen as a covariate.

Table 3 displays the means of the MASQ subscales for the HME and control groups. An ANCOVA controlling for work status showed that the HME group reported significantly more nonspecific depression and nonspecific anxiety symptoms than the control group,  $F(1, 47) = 7.51$ , and  $F(1, 47) = 7.22$ , respectively,  $ps < .01$ . There were no significant differences between groups on anhedonic depression,  $F(1, 47) = 0.19, p > .66$ , or anxious arousal,  $F(1, 47) = 2.62, p < .12$ . Heterogeneity of variance on anxious arousal was suspected,  $F_{\max}(1, 48) = 2.62, p < .05$ , and confirmed, Levene's  $F(1, 48) = 17.23, p < .0001$ . Following Keppel (1989), a more stringent significance level was chosen ( $p < .025$ ) which only reinforced the nonsignificance of the result. The current MASQ results indicate that the symptoms reported by HME participants, although satisfying the criteria of major depression are not necessarily specific to depression.

Work status was not significant in each of the ANCOVAs,  $ps > .20$ . Follow-up  $t$  tests showed that work status was not associated with the MASQ subscales within the HME or control groups,  $ps > .30$ . Following the diagnostic group difference analyses, the MASQ ANCOVAs were repeated with DAS as a covariate. DAS was not significant in any of these analyses,  $ps > .20$ . Correlations between the DAS and the MASQ subscales were conducted for each group in order to examine whether within-group correlations were masked by the covariates analysis. Interestingly, although DAS was not a significant covariate in the ANCOVA, it correlated significantly with anhedonic depression and nonspecific anxiety for the control group only (see Table 4). These correlations were significantly stronger for the control group than for the HME group,  $z = 3.97, p < .0001$ , and  $z = 2.16, p < .05$ , respectively. Furthermore, DAS was marginally associated with nonspecific depression for the control group,  $r = -.38, p < .06$ . This corre-

Table 3  
Means and Standard Deviations of MASQ Scales  
for HME and Control Groups

MASQ scales	Group	
	HME	Control
Nonspecific depression <sup>a</sup>		
M	34.64	26.11
SD	11.15	9.50
Anhedonic depression <sup>b</sup>		
M	67.46	63.65
SD	18.32	14.38
Nonspecific anxiety <sup>c</sup>		
M	26.92	20.69
SD	8.93	5.78
Anxious arousal <sup>d</sup>		
M	26.15	21.64
SD	10.83	5.20

Note. For each group,  $n = 25$ . HME = humiliating marital event; MASQ = Mood and Anxiety Symptom Questionnaire.

<sup>a</sup>  $F(1, 47) = 7.51, p < .01$ . <sup>b</sup>  $F(1, 47) = .19, p > .66$ . <sup>c</sup>  $F(1, 47) = 7.22, p < .01$ . <sup>d</sup>  $F(1, 47) = 2.62, p < .12$ .

Table 4  
Correlations Between DAS and MASQ Subscales  
for HME and Control Groups

Subscale	DAS	
	HME group	Control group
Nonspecific depression	.01	-.38†
Anhedonic depression	.21 <sub>a</sub>	-.56** <sub>a</sub>
Nonspecific anxiety	-.05 <sub>b</sub>	-.47* <sub>b</sub>
Anxious arousal	-.09	-.29

Note. For each group,  $n = 25$ . Correlations sharing the same subscript are significantly different from each other at  $p < .05$ . DAS = Dyadic Adjustment Scale; MASQ = Mood and Anxiety Symptom Questionnaire; HME = humiliating marital event.  
†  $p < .06$ . \*  $p < .05$ . \*\*  $p < .01$ .

lation was marginally stronger for the control group than for the HME group,  $z = 1.92$ ,  $p < .06$ .

### Discussion

The primary goal of the current study was to compare the rates of MDEs in women who had recently experienced HMEs to women who had not experienced such events but reported similar levels of marital discord. We found that the occurrence of an HME significantly increases women's risk for an MDE when controlling for marital discord. Although Beach et al. (1990) suggested that both marital discord and negative marital events are associated with depression, this is the first study to examine the impact of negative marital events while accounting for marital discord. The fact that the strong relationship between humiliating marital events and depression remained after controlling for a variety of life events, a lifetime history of depression, and a family history of depression lends further support for the strength of this association. Additional analyses indicated that the high rate of MDEs in the HME group was not due to pre-HME depressive symptoms and marital discord. These findings bolster existing theory (e.g., Beach et al., 1990; Coyne & Downey, 1991; Jordan et al., 1991) and research (e.g., Brown et al., 1995; Christian-Herman et al., in press) that suggests that discrete marital stressors and devaluing events in relationships tend to precede depressive episodes. The application of Brown et al.'s (1995) conceptualization of humiliating events to marriage showed the powerful impact of such events on depression in women.

We also found that women who experience HMEs report more nonspecific symptoms of depression and anxiety than control participants. However, HME participants did not experience significantly more symptoms of anhedonic depression and anxious arousal than control participants. The absence of group differences on the anhedonic subscale given the significant group differences on MDEs is surprising because anhedonia or a lack of positive affect is considered to be a hallmark of an MDE. One explanation for this finding is that the HME and control groups have equally elevated levels of anhedonia due to increased marital discord. Both the HME and control groups scored higher on anhedonic depression than a sample of 186 community women recruited by Watson, Weber, et al. (1995;  $M = 55.2$ ,  $SD = 15.2$ ). Future research may

benefit from a maritally nondiscordant (i.e., satisfied) control group with which to compare MASQ score elevations. This maritally nondiscordant group might report significantly fewer symptoms of anhedonia than the HME and discordant control groups. Watson, Weber, et al.'s (1995) findings also suggest that a maritally nondiscordant control group might report fewer symptoms of nonspecific depression ( $M = 25.0$ ,  $SD = 9.4$ ) and nonspecific anxiety ( $M = 20.8$ ,  $SD = 6.7$ ) than the HME group but similar amounts of symptoms to the discordant control group. In addition, a maritally nondiscordant control group may report levels of anxious arousal ( $M = 24.2$ ,  $SD = 7.8$ ) that are similar to both the HME and discordant control groups.

These findings suggest that assessing symptoms specific to anxiety and depression is necessary in order to understand the full impact of HMEs and other marital problems. Previous research has tended to rely on self-report depressive symptom measures as measures of "pure" depression, despite cautions about the presence of anxiety symptoms in these measures (Clark & Watson, 1991). This practice has led to an incomplete understanding of the impact of marital problems on mood. Continued use of the MASQ and similar scales that differentiate between nonspecific and specific symptoms of anxiety and depression may show that a variety of factors moderate the association between HMEs and types of symptoms. For instance, women who perceive little or no control over the outcome of HMEs may experience more anhedonic and nonspecific anxiety symptoms than women who perceive some degree of control. Similarly, HMEs in the context of earlier interpersonal losses may be more likely to precipitate anhedonic symptoms. The current findings also suggest that HMEs may precipitate *DSM-IV* anxiety disorders. Although there is a large body of evidence concerning the relationship between marital problems and depression, there is much less research on the association between marriage and anxiety symptoms and disorders. Research in this area can inform clinical practice as researchers understand more fully the complete psychological impact of HMEs.

Contrary to previous research (e.g., Kendler et al., 1995, 1997), family history of depression and lifetime history of depression were not significant covariates of current MDEs. Perhaps family and lifetime histories would be more influential in cases of depression that were not precipitated by life events or HMEs. Torgersen (1987) suggested that familial aggregation of depression is more common in depressed and hospitalized individuals than for depressed individuals in the community. Additional research using more stringent methods and measures of family and lifetime history of depression (e.g., prospective research, direct interviews with family members) must be conducted before stronger conclusions can be made. Some may be concerned that excluding participants with an episode of major depression that began within 2 months prior to the HME might minimize the impact of HMEs on depression. This appears unlikely in the current study because we excluded only two participants using this rule. However, researchers might be interested in examining how current MDEs might precipitate HMEs on the basis of previous research that has shown that women with unipolar depression appear to generate stressful interpersonal situations (Hammen, 1991). In order to examine this interesting question, researchers could conduct a prospective study with a sample of adolescents without a prior history of depression or HMEs. Periodic assessments of MDEs and HMEs over time

may present a clearer picture of how these variables are interrelated.

It is also interesting to note that marital satisfaction was not a significant covariate of MDEs in the HME or control groups. In addition, it appears that the presence of an HME moderates the relationship of marital discord and psychological symptoms. Specifically, marital discord was not associated with psychological symptoms in the HME group but was associated with nonspecific depression, nonspecific anxiety, and anhedonic depression in the control group. One reason for these findings is that the traumatic nature of the HME may override the more general negative feelings about the relationship. Although marital distress alone might be associated with depressive symptoms, the distress may become much less important when infidelity or another type of humiliating marital event must be addressed. Anecdotally, the vast majority of HME participants reported feeling betrayed or humiliated by their husbands and reported quite a bit of rumination and guilt feelings related to the event. It appears that an HME activates conflicting emotions and thoughts that may not necessarily be activated under the more common experience of marital discord. These results suggest that it is advisable for researchers to assess for the presence of recent HMEs when investigating the association between marital discord and depressive symptoms. Because most of the previous research fails to assess for recent marital events, it is conceivable that the relationship between marital discord and depressive symptoms has been underestimated.

There are several qualifications that should be mentioned about the current study. First, we did not use the entire Life Experiences Scale (Sarason et al., 1978); however, we did assess and control for the occurrence of the seven major life events from that scale as well as other chronic life stressors (e.g., substance dependence of the spouse, child running away) that might have contributed to depression. It is possible that HME participants experienced more unassessed, less severe life stressors (e.g., traffic tickets, change in type of recreation) than control participants and that this difference may have contributed to the higher rate of depression in the HME group; however, this seems unlikely. Another issue involves the generalizability of the current results. Most of the participants in the current study were Caucasian (96%), and it is unclear whether the results are generalizable to women of other ethnic or cultural groups. In addition, the HME callers might have been a subset of women in the geographical area who were less threatened by discussing their marital problems than women who did not respond to the advertisements. It is also possible that some women did not call about the study because they were experiencing more severe and debilitating levels of depression. Therefore, the current study may have underestimated the psychological impact of HMEs on women in the community because a substantial number of women chose not to respond for a variety of reasons. This is a serious concern because almost three quarters of the HME group became clinically depressed. It is critical to develop clinical research methods aimed at reaching women who experience such stressors if researchers are to understand the full impact of these marital problems and offer effective treatments.

The current findings suggest that women who experience HMEs are in special need of effective clinical interventions to help them cope with feelings of betrayal, humiliation, and shame that are associated with symptoms of an MDE. In addition, interventions may be able to address the accompanying loss of social support

from the husband. Following a review of the literature, Cano and O'Leary (1997) recommended that cognitive-behavioral and systems approaches be included in marital therapy following one type of humiliating event (i.e., infidelity) if both partners are committed to the marriage. Individual or group therapies may be an alternative for women who are unable or choose not to continue the marital relationship. However, this is not to say that women who are discordant with no negative marital events should not receive clinical services. The results of this study suggest that they experienced higher levels of anhedonic depressive symptoms than community women who were not selected on the basis of discord (Watson, Weber, et al., 1995). Cognitive-behavioral marital therapy may be appropriate for these women, as prior research has shown that it is effective in reducing both marital discord and depressive symptoms in married women (Beach & O'Leary, 1992; Jacobson et al., 1991; O'Leary & Beach, 1990).

## References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Aseltine, R. H., & Kessler, R. C. (1993). Marital disruption and depression in a community sample. *Journal of Health and Social Behavior, 34*, 237-251.
- Beach, S. R. H. & O'Leary, K. D. (1992). Treating depression in the context of marital discord: Outcome and predictors of response of marital therapy versus cognitive therapy. *Behavior Therapy, 23*, 507-528.
- Beach, S. R. H., Sandeen, E., & O'Leary, K. D. (1990). *Depression in marriage*. New York: Guilford Press.
- Brown, G. W., & Harris, T. O. (1978). *Social origins of depression: A study of psychiatric disorder in women*. London: Tavistock.
- Brown, G. W., & Harris, T. O. (1989). Depression. In G. W. Brown & T. O. Harris (Eds.), *Life events and illness*. New York: Guilford Press.
- Brown, G. W., Harris, T. O., & Hepworth, C. (1995). Loss, humiliation and entrapment among women developing depression: A patient and non-patient comparison. *Psychological Medicine, 25*, 7-21.
- Cano, A., & O'Leary, K. D. (1997). Romantic jealousy and affairs: Research and implications for couple therapy. *Journal of Sex and Marital Therapy, 23*, 249-275.
- Christian, J. L., O'Leary, K. D., & Vivian, D. (1994). Depressive symptomatology in maritally discordant women and men: The role of individual and relationship variables. *Journal of Family Psychology, 8*, 32-42.
- Christian-Herman, J., O'Leary, K. D., & Avery-Leaf, S. (in press). The impact of negative events in marriage on depression. *Journal of Social and Clinical Psychology*.
- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316-336.
- Coryell, W., Endicott, J., & Keller, M. (1992). Major depression in a nonclinical sample: Demographic and clinical risk factors for first onset. *Archives of General Psychiatry, 49*, 117-125.
- Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry, 39*, 28-40.
- Coyne, J. C., & Downey, G. (1991). Social factors and psychopathology: Stress, social support, and coping processes. *Annual Review of Psychology, 42*, 401-425.
- Eaton, W. W., Kramer, M., Anthony, J. C., Dryman, A., Shapiro, S., & Locke, B. Z. (1989). The incidence of specific DIS/DSM-III mental disorders: Data from the NIMH epidemiologic catchment area program. *Acta Psychiatrica Scandinavica, 79*, 163-178.
- Emanuels-Zuurveen, L., & Emmelkamp, P. M. G. (1996). Individual

- behavioural-cognitive therapy versus marital therapy for depression in maritally distressed couples. *British Journal of Psychiatry*, 169, 181-188.
- Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science*, 8, 351-357.
- First, M., Spitzer, L., Gibbon, M., & Williams, J. (1995). *Structured clinical interview for Axis I DSM-IV disorders (SCID)*. Washington, DC: American Psychiatric Association.
- Goodman, L. A. (1978). *Analyzing qualitative/categorical data*. Cambridge, MA: Abt Books.
- Gravetter, F. J., & Wallnau, L. B. (1996). *Statistics for the behavioral sciences*. Minneapolis, MN: West Publishing Company.
- Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology*, 100, 555-561.
- Jacobson, N. A., Dobson, K., Fruzzetti, A. E., Schmaling, K. B., & Salusky, S. (1991). Marital therapy as a treatment for depression. *Journal of Consulting and Clinical Psychology*, 59, 547-557.
- Jordan, J. V., Kaplan, A. G., Miller, J. B., Stiver, I. P., & Surrey, J. L. (1991). *Women's growth in connection: Writings from the Stone Center*. New York: Guilford Press.
- Kaplan, A. G. (1991). The "Self-in-Relation": Implications for depression in women. In J. V. Jordan, A. G. Kaplan, J. B. Miller, I. P. Stiver, & J. L. Surrey (Eds.), *Women's growth in connection: Writings from the Stone Center* (pp. 206-222). New York: Guilford Press.
- Kendler, K. S., Davis, C. G., & Kessler, R. C. (1997). The familial aggregation of common psychiatric and substance use disorders in the National Comorbidity Survey: A family history study. *British Journal of Psychiatry*, 170, 541-548.
- Kendler, K. S., Kessler, R. C., Neale, M. C., Heath, A. C., & Eaves, L. J. (1993). The prediction of major depression in women: Toward an integrated etiologic model. *American Journal of Psychiatry*, 150, 1139-1148.
- Kendler, K. S., Kessler, R. C., Walters, E. E., MacLean, C., Neale, M. C., Heath, A. C., & Eaves, L. J. (1995). Stressful life events, genetic liability, and onset of an episode of major depression in women. *American Journal of Psychiatry*, 152, 833-842.
- Kendler, K. S., Neale, M. C., Kessler, R. C., Heath, A. C., & Eaves, L. J. (1992). A population-based twin study of major depression in women: The impact of varying definitions of illness. *Archives of General Psychiatry*, 49, 257-266.
- Keppel, G. (1989). *Design and analysis: A researcher's handbook* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Lewinsohn, P. M., Duncan, E. M., Stanton, A. K., & Hautzinger, M. (1986). Age at first onset for nonbipolar depression. *Journal of Abnormal Psychology*, 95, 378-383.
- O'Leary, K. D., & Beach, S. R. H. (1990). Marital therapy: A viable treatment for depression and marital discord. *American Journal of Psychiatry*, 147, 183-186.
- O'Leary, K. D., Christian, J. L., & Mendell, N. R. (1994). A closer look at the link between marital discord and depressive symptomatology. *Journal of Social and Clinical Psychology*, 13, 33-41.
- Paykel, E. S., Myers, J. K., Dienelt, M. N., Klerman, G. L., Lindenthal, J. A., & Pepper, M. P. (1969). Life events and depression: A controlled study. *Archives of General Psychiatry*, 21, 753-760.
- Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the life experiences survey. *Journal of Consulting and Clinical Psychology*, 46, 932-946.
- Sher, T. G., & Baucom, D. H. (1993). Marital communication: Differences among maritally distressed, depressed, and nondistressed—nondepressed couples. *Journal of Family Psychology*, 7, 148-153.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15-28.
- Torgersen, S. (1987). Sampling problems in twin research: Munich genetic discussion international symposium. *Journal of Psychiatric Research*, 21, 385-390.
- Watson, D., & Clark, L. A. (1991). *Mood and anxiety symptom questionnaire*. Unpublished manuscript, University of Iowa.
- Watson, D., Clark, L. A., Weber, K., Assenheimer, J. S., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model: II. Exploring the symptom structure of anxiety and depression in student, adult, and patient samples. *Journal of Abnormal Psychology*, 104, 15-25.
- Watson, D., Weber, K., Assenheimer, J. S., Clark, L. A., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model: I. Evaluating the convergent and discriminant validity of anxiety and depression symptoms scales. *Journal of Abnormal Psychology*, 104, 3-14.
- Weissman, M. M. (1987). Advances in psychiatric epidemiology: Rates and risks for major depression. *American Journal of Public Health*, 77, 445-451.
- Wheaton, B. (1994). Sampling the stress universe. In W. R. Avison & I. H. Gotlib (Eds.), *Stress and mental health* (pp. 77-114). New York: Plenum.
- Whisman, M. A., & Bruce, M. L. (1999). Marital distress and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology*, 108, 674-678.

Received August 25, 1999

Revision received January 5, 2000

Accepted January 19, 2000 ■