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Psychopathology and Marital Satisfaction: The Importance of Evaluating Both Partners

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Using path analysis and hierarchical linear modeling, the authors evaluated the associations between both partners' level of depression and anxiety, as measured by Minnesota Multiphasic Personality Inventory–2 (MMPI-2) content scales, and both partners' level of marital satisfaction among married couples (N = 774) that participated in the MMPI restandardization study (J. N. Butcher, W. G. Dahlstrom, J. R. Graham, A. Tellegen, & B. Kaemmer, 1989). Results indicated that marital satisfaction was predicted by the person's own level of anxiety and depression (i.e., actor effects) and by his or her spouse's level of depression only (i.e., partner effects). Findings also indicated that (a) there were no significant gender differences in the magnitude of effects, (b) depression effects were significantly stronger than anxiety effects, (c) actor effects were significantly stronger than partner effects, and (d) there were interactions between actor and partner effects for depression only.

There is a growing body of research findings indicating that psychopathology is intricately linked with marital functioning (for a review, see Whisman & Uebelacker, 2003). Furthermore, because relationship satisfaction "dominates the attention of marriage researchers" (Norton, 1983, p. 141) and has been identified as the "final common pathway" (Jacobson, 1985, p. 327) in research on close relationships, much of the research on psychopathology and marital functioning has focused on relationship satisfaction.

In studying the association between psychopathology and relationship satisfaction, investigators have generally adopted one of two perspectives. From the first perspective, investigators have evaluated the association between one person's level of psychopathology and his or her own level of relationship satisfaction (i.e., actor effects). For example, investigators have studied actor effects to test the proposal that marital satisfaction is causally related to psychopathology, insofar as people develop symptoms of psychopathology in response to (e.g., Beach, Sandeen, & O'Leary, 1990), or as a method of coping with (e.g., McCrady & Epstein, 1995), problems in their relationships. Investigators have also studied actor effects to evaluate the social (i.e., interpersonal) consequences of mental health problems (e.g., Goering, Lin, Campbell, Boyle, & Offord, 1996). Results from prior research indicate that compared with individuals without a disorder, people seeking treatment for mood disorders (e.g., Bauserman, Arias, & Craighead, 1995; Vega et al., 1993), anxiety disorders (e.g., Arrindell & Emmelkamp, 1986; Chambless et al., 2002), and substance use disorders (e.g., Fals-Stewart, Birchler, & O'Farrell, 1999; O'Farrell & Birchler, 1987) report lower marital satisfaction. More recently, the association between one's own level of psychopathology and one's own level of marital satisfaction has also been obtained in representative community samples (e.g., Goering et al., 1996; Markowitz, Weissman, Ouellette, Lish, & Klerman, 1989; McLeod, 1994; Whisman, 1999).

A second perspective on the association between psychopathology and marital satisfaction has evaluated the association between psychopathology in one person and relationship satisfaction in the partner (i.e., partner effects). For example, partner effects have been studied to evaluate the perspective that there are burdens associated with being in a relationship with someone with mental health problems and that these burdens may result in lower relationship satisfaction for the partner (e.g., Chakrabarti, Kulhara, & Verma, 1993; Coyne et al., 1987). Results from prior studies have found that the presence of psychopathology in one person is associated with lower marital satisfaction in the partner (e.g., Bauserman et al., 1995; Coyne, Thompson, & Palmer, 2002; O'Farrell & Birchler, 1987).

Although studying actor and partner effects has been informative regarding the association between psychopathology and marital satisfaction, the design of prior studies has been incomplete with respect to testing the full range of associations among these

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variables within close relationships. Specifically, most studies have not taken into account how the mental health of both members of a couple jointly influences the relationship. Research has shown greater than chance levels of partner similarity (i.e., homogamy) with respect to the presence of psychiatric disorders (e.g., Galbaud du Fort, Bland, Newman, & Boothroyd, 1998; Maes et al., 1998; McLeod, 1995), psychiatric symptomatology (e.g., Dubuis-Stadelmann, Fenton, Ferrero, & Preisig, 2001; Galbaud du Fort, Kovess, & Boivin, 1994), and general well-being (Galbaud du Fort et al., 1994). There have been several explanations advanced to account for this covariation between partners. For example, as discussed in greater detail by Maes et al. (1998), within-couple resemblance of psychiatric disorders could be the result of assortative mating (i.e., character specific mate selection), marital interaction (i.e., mutual influence between partners), mate selection for correlated traits (i.e., partners selection is based on variables such as personality characteristics that in turn influence risk for psychopathology), or geographic or social stratification. Between-partners similarity could also be due to common life stressors, such as job loss or major illness. Regardless of the cause, between-partners concordance on measures of psychopathology suggests that a comprehensive evaluation of the association between psychopathology and relationship satisfaction requires the assessment of both individuals (for a parallel discussion on personality and relationship satisfaction, see Robins, Caspi, & Moffitt, 2000). Unless data from both individuals are included, one cannot determine to what extent the observed associations between measures of psychopathology and marital satisfaction are due to one partner's own mental health versus the other partner's mental health.

In this study, both partners' reports of their own level of psychopathology were used to predict both partners' level of marital satisfaction. Evaluating this full model allowed us to test the relative importance of the association between psychopathology of each spouse on his or her own, and on his or her partner's, level of marital satisfaction. Furthermore, evaluating this full model allowed us to take into account, statistically, the fact that we expected psychopathology of partners to be correlated; this correlation may, in fact, account for part of the association between partner's psychopathology and actor's marital satisfaction. Finally, evaluating the full model allowed us to take into account the likelihood that variance in spouses' marital satisfaction not predicted by psychopathology may be correlated, which allowed us to more accurately model the data than if we looked at either partner alone.

Data from the study came from the Minnesota Multiphasic Personality Inventory (MMPI) restandardization project (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), which involved data collection from 2,600 individuals who resided in seven states (California, Minnesota, North Carolina, Ohio, Pennsylvania, Virginia, and Washington). In comparison with studies of MMPI correlates of marital satisfaction that have focused on the MMPI clinical scales (e.g., Lewak, Wakefield, & Briggs, 1985; Murstein & Glaudin, 1968; Snyder & Regts, 1990), we were interested in evaluating the association between marital satisfaction and MMPI-2 content scales. Empirical support for the content scales comes from studies that have found that the scales have acceptable external correlates on the basis of personality and behavior ratings of the couples in the MMPI-2 restandardization study (Butcher, Graham, Williams, & Ben-Porath, 1990), therapists' ratings of symptoms in outpatient mental health settings (Barthlow, Graham, Ben-Porath, & McNulty, 1999), self-report and clinician-rated measures of symptoms in inpatients (Archer, Aiduk, Griffin, & Elkins, 1996), and self-report measures of personality and psychopathology in nonpatient samples (Ben-Porath, McCully, & Almagor, 1993). In particular, given preexisting research documenting the strong covariation between marital satisfaction and both depression and anxiety, we focused our study on the MMPI-2 Depression (DEP) and Anxiety (ANX) content scales.

Our aims in this study were fivefold. First, we wanted to determine whether dimensional measures of symptoms of depression and anxiety were associated with one's own marital satisfaction (an actor effect) as well as with the marital satisfaction of one's partner (a partner effect). Hjemboe and Butcher (1991) reported that each partner's MMPI-2 content scales were correlated with his or her own level of marital satisfaction in the MMPI restandardization sample. However, these authors did not report on the associations between both partners' MMPI-2 content scales and both partners' relationship satisfaction. We hypothesized that higher levels of psychopathology in each member of the couple would be associated with lower levels of satisfaction for each member. Second, we wanted to determine whether the magnitude of the associations between psychopathology and marital satisfaction varied as a function of the gender of the respondent (i.e., whether the man's psychopathology had different effects on marital satisfaction than the woman's psychopathology; Robins et al., 2000). Thus, we evaluated whether (a) women's depression and anxiety predicted their own marital satisfaction scores to the same degree that men's depression and anxiety predicted men's marital satisfaction scores and (b) whether women's depression and anxiety predicted men's marital satisfaction scores to the same degree that men's depression and anxiety predicted women's marital satisfaction scores. Actor and partner effects were modeled in a similar fashion to those modeled by Robins et al. (2000) in their investigation of personality and relationship satisfaction. Third, given the high covariation between depression and anxiety (for a review, see Mineka, Watson, & Clark, 1998), we were interested in evaluating whether the magnitude of the associations between depression and marital satisfaction would differ from the magnitude of the associations between anxiety and marital satisfaction. Fourth, we were interested in determining whether the magnitude of the associations between psychopathology and marital satisfaction varied as a function of the role of the respondent (i.e., whether the actors' psychopathology had different effects on actors' satisfaction than the partners' psychopathology had on actors' satisfaction). Fifth, we were interested in evaluating whether the associations between actor effects and marital satisfaction would vary as a function of partner effects (i.e., whether partner effects would moderate the association between actor effects and satisfaction).

Method

Participants

The study participants were part of the MMPI restandardization project (Butcher et al., 1989). Participants were randomly solicited and paid for their participation. Included in the data set were data from 841 couples. The present analysis was limited to mixed-gender spouses (as there were very few same-gender partners) or unmarried heterosexual partners sharing a

home; spouses that were married but separated were also retained (Hjemboe & Butcher, 1991). These exclusion criteria eliminated 67 couples, leaving a final sample of 774 couples, the majority (91%) of whom were married. The mean age of women was 40.17 ($SD = 14.11$) years, and they had a mean of 14.55 ($SD = 2.31$) years of education; corresponding figures for men were 42.72 ($SD = 14.87$) years and 15.02 ($SD = 2.76$) years of education, respectively. The racial–ethnic distribution of women was 88.4% White, 7.4% Black, 0.9% Hispanic, and 3.3% other; corresponding figures for men were 87.7% White, 8.7% Black, 1.3% Hispanic, and 2.3% other, respectively. Average length of the relationship was 16.41 ($SD = 13.80$) years.

Measures

MMPI-2 content scales (Butcher et al., 1990). The MMPI-2 includes 15 content scales. These scales were developed with a multimethod, multistage scale construction strategy, which used both rational and statistical procedures to ensure content homogeneity and strong psychometric properties. In the current study, we examined the ANX and DEP scales. Internal consistency coefficients for the ANX and DEP scales for men and women in the restandardization sample were greater than .80, and test–retest reliability coefficients for the two scales were greater than .85. Validity for the ANX scale comes from studies that have found that it correlates highly with other symptom-based measures of anxiety (e.g., Ben-Porath et al., 1993; Strassberg, 1997). Validity for the DEP scale comes from studies that have found that it exhibits high correlations with other symptom measures of depression in both nonclinical (e.g., Ben-Porath et al., 1993; Strassberg, 1997) and clinical samples (Boone, 1994) and successfully differentiates people with major depression from those without major depression (e.g., Ben-Porath, Butcher, & Graham, 1991; Boone, 1994).

Dyadic Adjustment Scale (DAS; Spanier, 1976, 1989). Because the DAS is generally considered a multidimensional measure (e.g., Eddy, Heyman, & Weiss, 1991), and because some of the items from one of the subscales were excluded from the DAS in the restandardization sample to avoid overlap with other measures (Hjemboe & Butcher, 1991), we used the 10-item Satisfaction subscale from the DAS as the measure of marital satisfaction. It includes items that measure frequency of quarrels, discussions of separation, and positive interactions. The Satisfaction subscale has well-established psychometric properties (Spanier, 1989). It has been shown to have good internal consistency (Carey, Spector, Lantinga, & Krauss, 1993; Hunsley, Pinsent, Lefebvre, James-Tanner, & Vito, 1995; Kurdek, 1992; Vaughn & Baier, 1999) and both short-term (i.e., 2-week; Carey et al., 1993) and long-term (i.e., 1-year; Kurdek, 1992) test–retest reliability. Coefficient alpha for the present sample was .84 for men and .87 for women. Validity for the measure comes from studies that have found that it correlates highly with other measures of relationship quality (Hunsley et al., 1995; Kurdek, 1992; Vaughn & Baier, 1999) and with individual-difference and relationship variables known to correlate with relationship satisfaction (Hunsley et al., 1995; Kurdek, 1992). Hunsley et al. (1995) reported that the correlations between these relationship outcomes (i.e., relationship quality and relationship functioning) and the Satisfaction subscale did not significantly differ from the correlations obtained with the full DAS. Indeed, several theorists have suggested that the Satisfaction subscale can be used in place of the full DAS (Hunsley et al., 1995; Kurdek, 1992).

Results

Table 1 presents descriptive statistics for men and women on study variables. A few points bear mentioning. First, as expected given the community sample, approximately 8% of individuals fell within the clinical range on MMPI-2 ANX and DEP scores. Second, mean scores on the DAS Satisfaction subscale are similar to the means obtained in other studies (Spanier, 1989). Third, there was a small but significant difference between men and women on the Satisfaction subscale. In comparison, men and women did not significantly differ in mean scores on the MMPI-2 scales.

Overview of Data Analysis

To address the study aims, we used two data-analytic strategies, namely, path analysis and hierarchical linear modeling (HLM). Both strategies allowed us to accurately model data that were not independent and were collected from two members of one couple. However, each strategy has particular strengths on which we wanted to capitalize. We used path analysis to test the majority of the study questions because it allowed us to easily evaluate alternative models for the data (Kline, 1998). We used HLM to test the moderation question because it allowed us to easily test interaction terms (Campbell & Kashy, 2002).

Table 1
Means, Standard Deviations, and Intercorrelations Among Study Measures

Measure	Husbands	Wives	Paired t test ($df = 773$)	Within-couple correlation
Anxiety				
M (SD)	49.5 (9.5)	49.8 (10.1)	−0.58	.12*
% above clinical cutoff ($T \geq 65$)	8.3	8.3		
Correlation with depression	.71*	.75*		
Depression				
M (SD)	49.2 (9.3)	49.3 (9.7)	−0.11	.14*
% above clinical cutoff ($T \geq 65$)	7.8	7.6		
Dyadic Adjustment Scale–Satisfaction				
M (SD)	39.9 (5.7)	39.3 (6.6)	2.98*	.59*
Correlation with anxiety	−.27*	−.29*		
Correlation with depression	−.32*	−.33*		
Correlation with spouse anxiety	−.18*	−.17*		
Correlation with spouse depression	−.23*	−.19*		

Note. T scores greater than or equal to 65 are considered to be clinically significant (Butcher et al., 1989).
* $p < .01$.

Path Analyses

To evaluate most of the study questions, we tested a series of nested path models. First we describe the models tested, along with indices of model fit. After presenting this information, we describe the path coefficients and other statistics associated with the most parsimonious model that provided a fit to the data that was not significantly different from models with fewer constraints.

For the first model (Model 1), we specified directional paths from wives' MMPI-2 content scale scores (both ANX and DEP) to both wives' and husbands' Satisfaction subscale scores, and from husbands' MMPI-2 content scale scores to both wives' and husbands' Satisfaction subscale scores. Paths from wives' MMPI-2 content scale scores to wives' Satisfaction subscale scores, and from husbands' MMPI-2 content scale scores to husbands' Satisfaction subscale scores, represent actor effects; paths from wives' MMPI-2 content scale scores to husbands' Satisfaction subscale scores, and from husbands' MMPI-2 content scale scores to wives' Satisfaction subscale scores, represent partner effects.

Because husbands and wives, by definition, have influence over each other and share many common experiences, data collected from spouses are never independent. Failing to account for this lack of independence in data analysis can bias significance tests of the overall model (Kenny, 1995). Therefore, as suggested by Kenny (1996), we included three additional paths in our path model. First, we allowed wives' and husbands' MMPI-2 ANX scores to correlate with each other, and wives' and husbands' MMPI-2 DEP scores to correlate with each other. Second, the disturbances of both wives' and husbands' Satisfaction subscale scores were also permitted to correlate. The disturbances represent the variance in these variables not accounted for in the proposed model (i.e., variance in Satisfaction subscale scores not accounted for by wives' and husbands' MMPI-2 ANX and DEP scores). Finally, to acknowledge the association between anxiety and depression within an individual, we allowed wives' ANX and DEP scales to correlate and husbands' ANX and DEP scores to correlate. This served as the basic model against which we could test subsequent, more parsimonious, models. This model provided an adequate fit to the data, $\chi^2(2, N = 744) = 19.04$, $p < .01$. In addition to the chi-square tests, three other fit indices that are commonly used to evaluate the fit of path analysis are the comparative fit index (CFI), the nonnormed fit index (NNFI), and the standardized root-mean-square residual (SRMR). Guidelines for an acceptable model fit are CFI and NNFI greater than .90 and SRMR less than .10 (Kline, 1998). The first model yielded acceptable values for each of these fit indices (CFI = .99, NNFI = .92, SRMR = .06).

To test the second question (i.e., whether effects of psychopathology on marital satisfaction were larger for women or for men), we tested a second model (Model 2), which was identical to Model 1 with a few exceptions. Actor effects (regardless of gender) within the ANX scale were constrained to be equal to each other, and partner effects within the ANX scale were constrained to be equal to each other. The same constraints were specified within the DEP scale. Model 2 was nested within Model 1; thus, we used chi-square difference tests to evaluate whether Model 2 provided a significantly worse fit to the data than did Model 1. We found that Model 2 provided reasonable model fit, $\chi^2(6, N = 744) = 23.10$, $p < .01$ (CFI = .99, NNFI = .97, SRMR = .06). Chi-square difference tests suggest that Model 2 did not provide a poorer fit to the data than did Model 1, $\chi^2(4, N = 744) = 4.06$, $p > .05$. This indicates that within the particular content scale (ANX or DEP), the actor effects are not different in magnitude and direction and partner effects are not different in magnitude and direction, regardless of the gender of the actor or partner.

Next, we wanted to address the question of whether depression effects on marital satisfaction were larger or smaller than anxiety effects. Therefore, in the third model (Model 3) that we tested, we added additional constraints to the constraints in Model 2. That is, we also required that actor effects for ANX be equivalent to actor effects for DEP and that partner effects for ANX be equivalent to partner effects for DEP. Model 3 provided reasonable model fit, $\chi^2(8, N = 744) = 30.57$, $p < .01$ (CFI = .99, NNFI = .97, SRMR = .07). However, chi-square difference tests suggest that Model 3 did not fit the data as well as did Model 2, $\chi^2(2, N = 744) = 7.47$, $p < .05$. These difference tests suggest that depression effects and anxiety effects on marital satisfaction are significantly different. As described below, inspection of path coefficients suggests that depression effects are larger than anxiety effects.

Finally, to test whether actor effects were significantly larger or smaller than partner effects, we tested a fourth model (Model 4). In Model 4, not only were effects across genders constrained to be equivalent (as in Model 2) but also actor effects were constrained to be equal to partner effects. (Depression effects were not constrained to be equivalent to anxiety effects.) Thus, Model 4 was nested within Model 2. Model 4 provided adequate model fit, $\chi^2(8, N = 744) = 51.42$, $p < .01$ (CFI = .97, NNFI = .94, SRMR = .07). However, chi-square difference tests suggest that Model 4 provided a significantly poorer fit to the data than did Model 2, $\chi^2(2, N = 744) = 28.32$, $p < .05$. This suggests that actor effects are not equivalent to partner effects. As described below, inspection of path coefficients suggests that actor effects are larger than partner effects.

The results of the chi-square difference tests of these nested models suggest that Model 2 is the preferred model, as it did not differ significantly in fit from Model 1 yet was more parsimonious. Model 2 did provide a significantly better fit to the data than did either Model 3 or Model 4. These results suggest that (a) depression and anxiety have significantly different associations with marital satisfaction and (b) actor effects are significantly different from partner effects. However, actor and partner effects are not different by gender.

Model 2 is presented in Figure 1. Inspection of this figure indicates that the correlations between wives' ANX and DEP scales and between husbands' ANX and DEP scales were significant, as were the correlations between disturbances of the endogenous variables (wives' and husbands' Satisfaction subscale scores). That is, there was a significant correlation between the variance in wives' Satisfaction subscale score that was not accounted for within the model and the variance in husbands' Satisfaction subscale score not accounted for within the model.

In Model 2, the significance of the directional path coefficients provides a test of the association between psychopathology (i.e., anxiety and depression) and marital satisfaction in both partners. In Figure 1, we can see that for both ANX and DEP scales, actor effects are significantly associated with marital satisfaction. Furthermore, it can be seen that actor effects are larger than partner

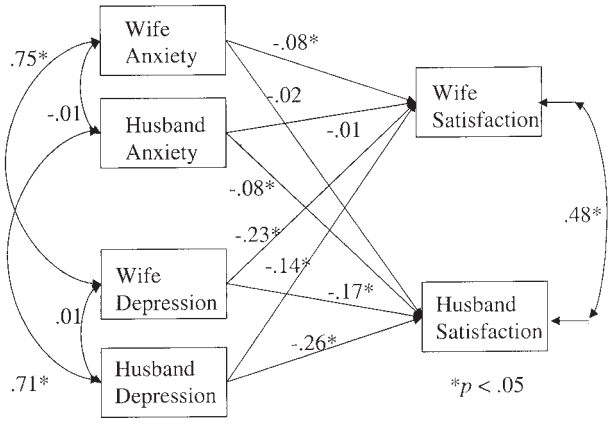

Figure 1. Path model including both husband and wife Minnesota Multiphasic Personality Inventory–2 Depression and Anxiety scales in the prediction of marital satisfaction, $\chi^2(6, N = 744) = 23.10$, $p < .01$ (comparative fit index = .99, nonnormed fit index = .97, standardized root-mean-square residual = .06). Regression coefficients are standardized. Of the models tested, this model was the most parsimonious model that provided a fit to the data not significantly different from less parsimonious models. In this model, the effects are constrained to be the same for husbands and for wives.

effects; in fact, partner effects are significantly associated with marital satisfaction for the DEP scale only. In addition, effects for the DEP scale are larger than effects for the ANX scale. In terms of the magnitude of the obtained associations, the R^2 values for the structural equations indicated that when combined, one's own and one's partner's MMPI-2 ANX and DEP scales account for 11% of the variance in the Satisfaction subscale scores of wives and 14% of the variance in Satisfaction subscale scores of husbands.

HLM Analyses

The final set of questions that we wanted to ask concern partner homogamy (i.e., similarity). That is, if both partners are experiencing high levels of psychopathology, does that increase risk for marital dissatisfaction in a multiplicative (rather than additive) fashion? The strategy we used for testing this hypothesis involved creating interaction terms, as outlined by Campbell and Kashy (2002). We constructed two models that were identical except that one was designed to test actor–partner interactions on the ANX scale and the second tested actor–partner interactions on the DEP scale.

Before presenting results for each of the two MMPI-2 content scales, we present a description of the generic model used. As Campbell and Kashy (2002) suggested, we constructed a two-level hierarchical linear model with random intercepts. Level 1 of the model represents individual-level effects; Level 2 represents couple-level effects. When Level 1 and Level 2 are combined to form one regression equation, it can be represented as follows:

$$y_{ij} = \beta_0 + \beta_1 x_{1ij} + \beta_2 x_{2ij} + \beta_3 x_{3ij} + \beta_4 x_{4j} + \alpha_j + \varepsilon_{ij},$$

where y_{ij} is the observed outcome variable (marital satisfaction) for individual i within couple j; β_1, β_2, and β_3 are coefficients for individual-varying covariates x_{1ij} (gender), x_{2ij} (actor MMPI-2 content scale), and x_{3ij} (partner MMPI-2 content scale), respectively; β_4 is the coefficient for couple-varying covariate x_{4j} (Actor × Partner interaction term); α_j represents the effect caused by being a part of couple i; and ε_{ij} is a residual. This model differs from a fixed-effects regression model only in that the α_i term is included. This term accounts for the nonindependence of the spousal data. Variables were centered before calculating interaction terms (Aiken & West, 1991).

Results for the model testing whether the interaction between actor and partner anxiety predicts marital satisfaction are presented in the top half of Table 2. As would be expected given the path analyses described above, actor anxiety predicted marital satisfaction. In addition, in these analyses, partner anxiety also predicted marital satisfaction, which is likely because depression was not included as a covariate in these analyses as it was in the path analyses. The interaction between actor and partner anxiety did not predict any additional variance in marital satisfaction. The bottom half of Table 2 shows the results for depression. As expected, we found that actor and partner depression were independently related to marital satisfaction. In addition, the interaction between actor and partner depression was statistically significant as well. To understand this interaction, we examined three regression equations that represented the association between actor depression and actor satisfaction at low (one standard deviation below the mean), average, and high (one standard deviation above the mean) levels of partner depression (Aiken & West, 1991). As we expected, slopes for all three regression lines were negative, which indicates that higher actor depression was associated with lower actor satisfaction. However, the strongest association between actor depression and satisfaction was found when partners had high levels of depression. Therefore, it appears that having two partners with elevated depression scores increases risk for marital dissatisfaction in a multiplicative (rather than simply additive) fashion.

Discussion

In the present study, we evaluated the association between wives' and husbands' psychopathology and both spouses' level of marital satisfaction using continuous measures of depression, anxiety, and marital satisfaction in a large sample of couples drawn from seven states. We predicted that each person's level of psy-

Table 2
Hierarchical Linear Modeling to Test Effects of Actor and Partner Psychopathology on Marital Satisfaction

Model and fixed effect	Regression coefficient	*T* ratio	*df*
1			
Actor gender	−.300	−3.03*	1543
Actor anxiety	−.167	−11.27*	1543
Partner anxiety	−.088	−6.53*	1543
Actor × Partner Anxiety	−.003	−1.53	772
2			
Actor gender	−.299	−3.04*	1543
Actor depression	−.193	−12.48*	1543
Partner depression	−.104	−7.19*	1543
Actor × Partner Depression	−.005	−2.82*	772

* $p < .01$.

chopathology would be associated with his or her own level of satisfaction (i.e., actor effect) as well as with his or her partner's level of satisfaction (i.e., partner effect), such that higher levels of psychopathology would be associated with lower levels of marital satisfaction. We also conducted exploratory analyses to evaluate whether there were gender differences in actor and partner effects, whether there were differences between depression and anxiety in the magnitude of their association with marital satisfaction, whether the effects of actor and partner were significantly different, and whether the strength of actor and partner effects varied as a function of one another. Each of the main findings is examined in turn.

First, results indicated that a person's own level of depression and anxiety was significantly associated with his or her own level of marital satisfaction, with greater levels of psychopathology associated with lower levels of marital satisfaction. Evidence for actor effects is consistent with studies that have demonstrated within-person associations between psychopathology and marital satisfaction in treatment-seeking (e.g., Chambless et al., 2002; Vega et al., 1993) and community (Goering et al., 1996; Whisman, 1999) samples. Evidence for partner effects was more mixed, in that a person's own depression score was significantly associated with lower marital satisfaction in his or her partner. These findings are consistent with prior studies that have demonstrated that the presence of depression in one person is associated with lower satisfaction in his or her partner (e.g., Benazon & Coyne, 2000; Coyne et al., 2002). However, findings did not support a partner effect for anxiety. Coyne et al. (1987) reported that people living with a depressed person report feeling burdened in numerous ways and feeling upset by the person's depressive symptoms. It may be that the scope or magnitude of these burdens are not as great for people living with an anxious person, thereby resulting in a lack of association between one person's anxiety and his or her partner's satisfaction.

Evidence supporting actor effects and mixed support for partner effects highlights the importance of including both partners in examinations of associations between psychopathology and marital satisfaction. That is, this investigation elucidates the unique contribution that each spouse's level of psychopathology makes to his or her own and to his or her partner's reported level of marital satisfaction. Specifically, actor and partner effects for depression and anxiety accounted for 11% of the variance in the marital satisfaction of wives and 14% of the variance in satisfaction of husbands. It is also of note that results from this study rule out one alternative hypothesis (homogamy) that might have explained associations between psychopathology and marital satisfaction in investigations that failed to account for both partners. To that end, when actors' and partners' levels of psychopathology were allowed to be correlated, significant associations were observed for the direct paths between actors' psychopathology and marital satisfaction and between partners' depression and marital satisfaction. Therefore, we know that partner psychopathology does not account for the association between actor psychopathology and actor satisfaction, and that actor depression does not account for the association between partner depression and actor satisfaction.

Second, with respect to gender differences, results indicated that the degree to which wives' psychopathology was associated with their own levels of satisfaction did not differ from the degree to which husbands' psychopathology was associated with their own levels of satisfaction. Similarly, the degree to which wives' psychopathology was associated with their husbands' satisfaction levels did not differ from the degree to which husbands' psychopathology was associated with their wives' satisfaction levels. Consistent with these findings, gender differences that were found in a study on actor and partner effects on the association between personality and marital satisfaction were limited (Robins et al., 2000). Taken together, these findings suggest that the psychopathology and personality correlates of relationship satisfaction are generally similar for women and men.

Third, with respect to differences between anxiety and depression, results indicated that depression effects were significantly stronger than anxiety effects. The findings regarding depression adds to the existing literature that documents a robust association between depression severity and marital satisfaction (for a review, see Whisman, 2001). Consistent with this perspective, results from an epidemiologic study in which researchers evaluated the specificity between psychiatric disorders and marital satisfaction indicated that when controlling for comorbid disorders, mood disorders were the only disorders that were uniquely related to marital satisfaction for both women and men (i.e., satisfaction was uniquely related to major depression in women and dysthymia in men; Whisman, 1999). There are many possible explanations for this finding. For example, the individual with depression may tend to have a negative worldview that encompasses how he or she (negatively) views his or her partner and his or her relationship. In contrast, the cognitions of the individual with anxiety may center around an expectation of harm or failure but may not lead him or her to evaluate his or her relationship in a manner that is as negative and critical as the evaluation of the person with depression. An alternative explanation is that depression may be associated with greater deficits in couple functioning (e.g., problem solving, communication) than anxiety. Although the relative strength of effects for depression were larger than for anxiety, it is important to note that actor effects for anxiety were statistically significant. There are few studies that have evaluated the association between anxiety and marital functioning, and the present findings provide empirical support for the continued investigation into the association between both forms of psychopathology and marital satisfaction.

Fourth, with regard to differences between actor and partner effects, results indicated that the magnitude of the association between actors' psychopathology and marital satisfaction was significantly larger than the association between partners' psychopathology and marital satisfaction. This is the first study that we are aware of that has evaluated differences between actor and partner effects of psychopathology on marital satisfaction. There are at least two possible explanations for the obtained results. First, the finding that actor effects were more strongly related to satisfaction than partner effects could be methodological artifact. That is, because each spouse completed measures of psychopathology for him- or herself only, it is possible that mood-congruent cognitions or other manifestations of psychopathology influenced spouses' reports of their own marital satisfaction, thus inflating the association between their own level of psychopathology and marital satisfaction. Future studies that include assessments of psychopathology by both the individual (i.e., self-report) and his or her spouse (i.e., observational report), which could be combined as latent measures of psychopathology for the individual, would

provide a stronger test of the differences between actor and partner effects. Second, the obtained results could reflect true differences between actor and partner effects of psychopathology on marital satisfaction. To the extent that the obtained differences reflect true differences, these results suggest that marital satisfaction is more strongly associated with one's own level of psychopathology in comparison with the level of psychopathology of the partner. These findings are important insofar as some theorists have emphasized the importance of the influence of partner's level of psychopathology on marital and family functioning, through mechanisms such as increasing burden (e.g., Coyne et al., 1987) or disrupting family interactions and routines (e.g., Chakrabarti et al., 1993). In comparison, the current findings suggest that whereas both partners' level of psychopathology is associated with both partners' level of marital satisfaction, it is one's own level of psychopathology that is more important for satisfaction. Additional research that directly examines the relative strength of actor versus partner effects on the association between psychopathology and marital satisfaction could help to highlight the processes by which psychopathology and marital satisfaction mutually influence each other.

Fifth, regarding interactions between actor and partner effects, results from this study demonstrated that actor and partner effects vary as a function of one another for depression but not for anxiety. More specifically, we found evidence for the idea that both partners' depression levels interact to predict marital satisfaction, with the lowest satisfaction reported by couples in which both members reported greater levels of depression. These findings are similar to prior studies that have found that clinically depressed individuals whose spouses had a psychiatric diagnosis (which was not always depression) report lower levels of marital satisfaction (Ruestow, Dunner, Bleecker, & Fieve, 1978) and higher rates of divorce (Merikangas, 1984) than couples discordant for psychopathology. In comparison, McLeod and Eckberg (1993) found no differences in marital satisfaction between couples that were versus those that were not concordant for major depression. That so few studies have been conducted evaluating the effect that concordance for depression has with regard to marital functioning suggests that this should be included in future research on depression and marriage. This may lead to improvements in methods to treat couples in which both members are depressed. In comparison with depression, there was no significant interaction between actor and partner effects for anxiety. In sum, the present results suggest that actor and partner effects for depression are interactive, whereas those for anxiety are additive in their association with marital satisfaction.

Although evaluating the degree of partner homogamy was not one of the primary objectives of the study, it is of note that the correlation between spouses' reports of marital satisfaction was statistically significant and relatively robust ($r = .59$), whereas the correlations between spouses' reports of anxiety and depression were small (i.e., correlations were .12 and .14, respectively; these were reduced to $-.01$ and .01 in the path model). This finding suggests that there was relatively little homogamy on the assessed measures of anxiety and depression in the current study. The magnitude of these correlations is consistent with prior reports of spousal homogamy for psychiatric symptomatology (Dubuis-Stadelmann et al., 2001) and is similar in magnitude to associations obtained for some other constructs, such as personality (e.g., Buss, 1984; Robins et al., 2000). Although there are several studies that have found evidence for some degree of partner homogamy on measures of psychopathology, the reasons for this homogamy are largely unknown. Specifically, studies that have attempted to identify reasons for this association have failed to provide supporting evidence for hypothesized explanations for partner homogamy, including similarity in personality traits (Dubuis-Stadelmann et al., 2001) or sociodemographic similarity (Dubuis-Stadelmann et al., 2001; Galbaud du Fort et al., 1994; Maes et al., 1998). Therefore, future research is needed to enhance understanding of the reasons for partner similarity in symptomatology.

In interpreting the results of the study, it is important to consider its strengths and limitations. Strengths of the study included the use of a large sample of participants from multiple states and the use of path analyses and HLM to examine actor, partner, and gender effects. However, in the current study, we examined the hypothesized associations between psychopathology and marital satisfaction using symptom-based measures of psychopathology instead of clinically diagnosed disorders. As such, the MMPI-2 content scales do not provide a one-to-one correspondence with psychiatric disorders. Furthermore, it is unclear as to whether results reported in this study would replicate in a clinical sample. Additional research that includes individuals who meet diagnostic criteria for psychiatric disorders is necessary to expand an understanding of the effects of such disorders on marital satisfaction. Although there was an a priori reason for the present focus on depression and anxiety, it is possible that actor and partner effects may also be salient within other forms of psychopathology not included in the current study. For example, prior studies have found significant associations between substance abuse and marital satisfaction (e.g., Fals-Stewart et al., 1999; O'Farrell & Birchler, 1987; Whisman, 1999). Furthermore, measures of psychopathology and marital satisfaction used in the study were both measured by self-report and completed by both members of the couple. Future research would benefit from the use of multimethod assessment of these constructs, including an independent appraisal of psychopathology in each partner. Similarly, future research that seeks to rule out rival explanations for the observed associations (e.g., life stressors that impact both partners) would help to establish the importance of the observed associations. Finally, the data used in the current study were cross-sectional in nature. As such, it is difficult to determine directionality of effects for psychopathology and marital satisfaction. Longitudinal investigations that apply similar methodologies would be necessary to determine the antecedent nature of the association between psychopathology and marital satisfaction. Furthermore, longitudinal research is needed not only to establish the prospective associations between measures of psychopathology and marital satisfaction but also to identify the specific causal processes or pathways by which the two constructs are related. For example, it may be that the depression has a negative impact on communication, which in turn negatively impacts marital satisfaction. The current findings, however, suggest that measurement of both members of a couple is needed to provide a comprehensive understanding of the associations between psychopathology and couple satisfaction. If researchers collect these data and use statistical techniques designed to handle couple-level data, future research will be greatly enhanced.

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