

A survey study for investigating marriage as a factor in internalizing disorders

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ABSTRACT:Marital discord can produce depression and anxiety; however, we have not adequate information about impact of marriage on the development of internalizing symptoms. It isn't clear that the marital relationship can contribute to the broad dimension of internalizing symptoms. In addition, it isn't clear how the marital relationship contributes to internalizing symptoms: through global marital dissatisfaction or through specific relationship processes. This addresses the drawbacks to develop a comprehensive and refined framework within which to understand the role of marriage in the developmental course of internalizing symptoms. Method: Questionnaire and interview data were collected from 12 husbands and wives 5 times. According to result marital discord during the transition into marriage was associated with the broad dimension of internalizing symptoms for husbands but not for wives.

Keywords:Marriage, Internalizing disorders, Depression, Anxiety

INTRODUCTION

Establishing that marriage is a global risk factor for the general dimension of internalizing symptoms is a critical endeavor; however, it does not clarify the specific nature of the effects of marriage on psychopathology. This problem is due primarily to the tendency to narrow —marriage down to global satisfaction in prior studies. Focusing exclusively on marital satisfaction provides a limited perspective of how marriage contributes to individual psychopathology (Beach & O'Leary, 1993), and has prompted calls for investigations into the roles of specific relationship processes (e.g., conflictual interactions, supportive transactions) in the developmental course of psychopathology.

Researchers and clinicians recognize that existing interventions for treating psychopathology would be greatly enhanced by identifying new clinical targets. An increased understanding of the links between marital processes and depression is critical for enhancing the efficacy and effectiveness of these interventions. The first aim was to establish the presence of a higher-order factor of internalizing symptoms in a community sample of couples. Accordingly, I factor analyzed items of the Beck Depression Inventory – II and the Beck Anxiety Inventory. This aim expands upon previous research demonstrating both a higher-order factor shared among symptoms and specific dimensions of depressive and anxiety symptoms (Clark, Steer, & Beck, 1994). Researchers have demonstrated this factor structure in a sample of undergraduate students and in a clinical sample of outpatients. The second aim was to examine whether marital discord is a risk factor for the general dimension of internalizing symptoms. Consistent with results of prospective two wave designs indicating that marital discord predicts subsequent depressive symptoms (e.g., Beach et al, 2003), I predicted that lower levels of marital satisfaction during the transition into marriage would predict higher levels of internalizing symptoms across the first 7 years of marriage. The third aim was to examine the relative contributions of global marital dissatisfaction and specific relationship processes to the development of internalizing symptoms. Consistent with the marital discord model of depression (Beach et al., 1990) -- which suggests that relationship processes account for the link between marital discord and depressive symptoms -- I hypothesized that relationship processes would be significant predictors of symptoms when controlling for the effects of marital.

Literature review

Based on Lawrence and colleagues' work (Lawrence, Brock, Barry, Langer & Bunde, 2009; Lawrence et al., 2011), and existing research demonstrating links between marital processes and psychopathology, four relationship processes were identified as particularly relevant to the present study:

Conflict/problem-solving interactions: frequency and length of arguments; behaviors engaged in during conflicts; presence, level and severity of aggression or withdrawal during arguments; emotions and behaviors during arguments; recovery strategies after arguments Support transactions: quality of support when one partner is feeling down or has a problem; match between desired and received levels of support; whether support is offered in a positive or negative manner; mutuality of support provided and received across both partners Emotionally intimate transactions: mutual sense of closeness, warmth, interdependence and affection; comfort being emotionally vulnerable; comfort being oneself with partner; quality of self-disclosures; friendship; demonstrations of love and affection (verbal and physical expressions) Balance of power and control in the relationship: couple's ability to negotiate control across a variety of areas (e.g., scheduling one's own day, finances).

Relative to the literature on conflict and problem-solving, research focused on associations between other relationship processes and psychopathology is limited. Existing research has demonstrated that support is linked to internalizing disorders such that a lack of support is associated with depression. Indeed, partner support appears to play a protective role in the mental health of individuals coping with a range of problems from chronic illness to financial concerns. In particular, to the extent that spouses receive adequate support from their partners, they also experience fewer depressive symptoms.

MATERIAL AND METHOD

All procedures were approved by the university IRB. Participants were recruited through marriage license records in Linn and Johnson Counties of Iowa. Couples in which both spouses were at least 18 years of age were mailed letters inviting them to participate. Of the 1,698 letters that were sent, 358 (21%) were answered by couples who expressed interest by sending an e-mail, leaving a telephone message, or returning the stamped postcard included with the letter. Interested couples were screened over the telephone to ensure that they were married less than 6 months, in their first marriages, and that both partners were willing to participate. The first 105 couples who completed the screening procedures, were deemed eligible, and were able to schedule their initial laboratory appointments were included in the sample. Of the 105 couples who participated, one couple's data were deleted because it was revealed that it was not the wife's first marriage. Data from the husband of another couple were removed because his responses were deemed unusable and unreliable. One couple was dropped from the analyses because they did not complete the measure of marital satisfaction during the first wave of data collection. Thus, analyses were conducted with a final sample of 102 couples. Couples dated an average of 44 months ($SD = 27$) prior to marriage, 76% cohabited premaritally, and 15% were ethnic minorities. (The proportion of non-

Caucasians in Iowa is 7%; U.S. Census, 2005). Modal annual joint income ranged from \$40,001-\$50,000. Husbands' average age was 25.82 ($SD = 3.55$), and wives' was 24.78 ($SD = 3.67$). Modal years of education were 14 for both spouses. At the start of the study, 17 58% of couples reported that they had participated in either a marital preparation program or couples therapy. The majority of the sample (97%) included couples in which at least one spouse was employed.

Eligible couples completed Informed Consent Documents at Times 1 and 6. (Time 1 ICDs covered Times 1-5). They also completed questionnaires through the mail (as well as completing other procedures beyond the scope of this study) six times during the first 7 years of marriage: 3-6 months (Time 1), 12-15 months (Time 2), 21-24 months (Time 3), 30-33 months (Time 4), 54-57 months (Time 5), and 75-77 months (Time 6) after the wedding. At Time 1, couples also attended a laboratory appointment during which they were administered the Relationship Quality Interview (RQI; Lawrence et al., 2008; 2009; 2011) to assess relationship processes. Couples were paid \$25 to \$100 at each time point, depending on the number of participation hours requested. By Time 6, 12 couples had permanently separated or divorced and 5 couples had withdrawn from the study (a 95% retention rate); available data from these couples were included in the present study.

Measures **Questionnaires**

The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is a widely used measure of anxiety symptoms. Participants respond to 21 items with a 0 (not at all) to 3 (I could barely stand it) scale, with higher scores indicative of greater symptoms. The Beck Depression Inventory – II (BDI-II; Beck et al., 1996) is one of the most widely used self-report measures of depressive symptoms. Participants respond to each of 21 items on a scale ranging from 0 (e.g., —I do not feel worthless) to 3 (e.g., —I feel utterly worthless). Higher scores indicate greater symptoms. The Quality of Marriage Index (QMI; Norton, 1983) is a 6-item self-report questionnaire designed to assess the —essential goodness of a relationship. Participants indicate the extent to which they agree or disagree with 5 items using a scale from 1 (very strong disagreement) to (very strong agreement), and rate their global marital —happiness on a scale from 1 (very unhappy) to 10 (perfectly happy).

Scores were summed to create a composite score of global marital satisfaction. Alpha coefficients ranged from .91 to .97.

Semi-structured interview

The Relationship Quality Interview (RQI; Lawrence et al., 2008; 2009; 2011). Relationship processes were measured with a 60-minute interview designed to allow interviewers to conduct functional analyses of couples' relationships across a variety of relationship processes. Spouses are interviewed separately and simultaneously. Open-ended questions—followed by closed-ended questions—are asked to allow novel contextual information to be obtained. Concrete behavioral indicators are obtained to facilitate more objective ratings than might be obtained based on spouses' perceptions alone. Interviewer ratings are also obtained to eliminate the possibility that associations between poor functioning in a key domain and other factors (e.g., depression) are due to reporting biases. Interviewers independently rate each domain on scales from 1 (poor functioning) to 9 (high functioning), which are specific to each domain.

The RQI was administered at a mean of 3 months of marriage and assesses functioning over the—past 6 months; therefore, in the present study, the RQI captured relationship processes during the transition into marriage. Interviewer ratings based on interviews with husbands versus wives did not differ significantly from one another; thus, they were averaged to create composite scores of functioning at the couple level (as 19 opposed to the individual level). The RQI demonstrates strong reliability, convergent validity, and divergent validity (Lawrence et al., 2008; 2009; 2011). All interviews were audio-taped, and inter-rater reliability was assessed using a random sample of scores from 20% of the interviews. Intraclass correlations ranged from .71-.94.

Data Analyses

To examine a higher-order structure of internalizing symptoms, I used a method consistent with procedures outlined by Steer et al. (1995). A principal axis factor analysis (FA) was conducted with a Schmid-Leiman transformation using the 42 items of the BAI and BDI-2. Separate FAs were conducted with data collected at Times 1, 2, 3, 5, and 6. (The BAI was not administered at Time 4.) Before conducting these analyses, several preliminary steps were taken. First, to account for possible interdependence between spouses of a dyad, item-level correlations were examined (e.g., husbands' BAI item 1 correlated with wives' BAI item 1). Second, parallel factor analyses (O'Connor, 2000) were conducted to determine the maximum number of factors to be extracted for each FA at each time point.

For all other analyses, growth curve modeling techniques were used. GCM allows for a two-stage process in data analysis. The first stage (Level 1) estimates a trajectory of change (growth curve) for a variable that is described by two parameters: intercept and slope. Time was measured in months from the midpoint between Times 1 and 6 in order to model the intercept as overall levels of symptoms across time. The second stage of GCM (Level 2) allows for the examination of between-subjects differences in associations between time-invariant covariates and outcomes; that is, individual or couple-level characteristics can be examined as predictors of the intercepts and slopes. At Level 2, Level 1 coefficients were modeled as a function of time-invariant predictors (i.e., marital satisfaction and specific relationship processes at Time 1). The possibility of interdependence between husbands' and wives' data was incorporated into the analyses in four ways. First, when dyad members are distinguishable, as in this sample of heterosexual married couples, there are potentially two actor effects and two partner effects; all four paths were included in analyses.

Second, correlations between husbands' and wives' predictors were estimated in all equations. Third, the residual non-independence in outcomes was represented by the correlation between the error terms in husbands' and wives' outcomes. Fourth, if chi-square tests assessing the homogeneity of husbands' versus wives' Level 1 variance were significant for baseline models, residual terms were entered as simultaneous outcomes of all relevant predictors in subsequent models.

RESULT AND DISCUSSION

Means and standard deviations were computed for relationship processes and husbands' and wives' global marital satisfaction. Husbands' and wives' satisfaction scores were not significantly different at Time 1 ($t(101) = 1.60$, ns; 95% CI [-.14, 1.34]; husbands, $M = 41.29$, $SD = 4.65$; wives, $M = 40.69$, $SD = 4.87$). On average, and as expected at the onset of marriage, scores for relationship processes at Time 1 (analyzed at the couple level; possible range = 1-9) indicate that relationship quality was relatively high, but not as high as one might expect among couples married for only 3 months: conflict, $M = 6.47$, $SD = 1.24$; support, $M = 6.91$, $SD = 0.79$; intimacy, $M = 7.27$, $SD = 0.77$; power and control, $M = 6.92$, $SD = 0.83$).

Only two of the 210 inter-spouse item correlations (i.e., 42 items x 5 waves of data) were greater than .30 (< 1%). Based on recommendations made by Kenny (1995), husbands' and wives' data were combined and factor analyzed simultaneously ($N = 206$).

Results of parallel analyses indicated that a maximum number of 3 factors could be extracted at Times 1 and 2 and that a maximum of 4 factors could be extracted at Times 3, 5, and 6. Closer examination of 3- and 4-factor solutions suggested that a 2-factor model be retained across the 5 waves of data.

First-order principal axis FAs were conducted for each of the 5 waves of data and oblique (promax) rotated factor solutions were obtained. Based on results of parallel analyses, two factors were extracted at each time point. Correlations between the two first-order factors ranged from .42-.53 across the 5 waves of data, suggesting the presence of a higher-order factor. Thus, second-order principal axis FAs were conducted next to obtain a single, higher-order factor of internalizing symptoms. Eigenvalues, variances, and factor loadings were all comparable to results obtained by Steer et al. (1995).

Next, Schmid-Leiman solutions were obtained using factor loadings from the first-order and second-order principal axis FAs. A Schmid-Leiman solution serves to orthogonalize factor patterns to facilitate identification of first-order factors (anxiety and depression) representing dimensions that are independent from the general (shared) internalizing dimension. Congruence coefficients were examined from each pair of factor loadings (e.g., factor loadings for the higher-order internalizing factor at Times 1 and 2). Coefficients ranged from .94-.97 suggesting that there was factorial invariance over time.

Closer examination of factor loadings across the five time points indicated that item loadings were very similar in magnitude across first-order and second-order factors which prevented the selection of pure factor markers representative of general versus specific dimensions of symptoms. Given these results, composite scores of —internalizing symptoms were computed such that items were retained if: (a) the item had a factor loading of .30 or greater at 4 out of the 5 time points for the second-order factor or (b) the mean factor loading for that item (averaging across time) was .30 or greater.

Bivariate correlations among husbands' and wives' internalizing symptoms (averaged across time), marital satisfaction at Time 1, and the four relationship processes at Time 1. The inter-spousal correlation between husband and wife internalizing symptoms was small ($r = .10$) whereas, consistent with the literature on newlywed couples, levels of marital satisfaction between spouses were highly correlated ($r = .68$).

Predictors (marital satisfaction and four relationship processes at Time 1) and outcomes (average internalizing symptoms) were sufficiently distinct from each other to warrant examining them as separate (albeit related) constructs. Correlations between specific relationship processes and marital satisfaction suggested that, although global marital satisfaction is significantly associated with specific relationship processes, these are still distinct constructs with potentially unique contributions to internalizing symptoms (ranged from .40-.48).

Global Satisfaction versus Specific Relationship Processes

To examine the relative contributions of global marital satisfaction (QMI) and specific relationship processes at the onset of marriage to levels of internalizing symptoms over the first 7 years of marriage, time-invariant covariates were grand-mean centered at Level 2 as predictors of Level 1 husband and wife parameters:

$$\text{Level 1: } Y_{ij} (\text{InternalizingSymptoms}) = \beta_{1j} (\text{HusbandIntercept}) + \beta_{2j} (\text{WifeIntercept}) + r_{ij}$$

$$\text{Level 2: } \beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Hqmi}) + \gamma_{12}(\text{Wqmi}) + \gamma_{13}(\text{Conf}) + \gamma_{14}(\text{Support}) + \gamma_{15}(\text{Intimacy}) + \gamma_{16}(\text{Control}) + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Hqmi}) + \gamma_{22}(\text{Wqmi}) + \gamma_{23}(\text{Conf}) + \gamma_{24}(\text{Support}) + \gamma_{25}(\text{Intimacy}) + \gamma_{26}(\text{Control}) + u_{2j}$$

Husbands' satisfaction ($t(95) = -2.62, p < .05$) and power and control ($t(95) = -2.09, p < .05$) were significantly associated with husbands' symptoms. To the extent that husbands were more satisfied with their marriages and there was greater symmetry of power and control across spouses at the beginning of the marriage, husbands experienced fewer symptoms during the first 7 years of marriage. For wives, emotional intimacy was associated with wives' symptoms, $t(95) = -2.74, p < .01$. To the extent that couples were more emotionally intimate at the onset of marriage, wives experienced fewer symptoms over time.

Sensitivity Analyses

A series of sensitivity analyses were conducted to ensure that results were not biased by (a) violations of model assumptions or (b) missing data due to divorce. Residual analyses indicated that there was some degree of non-normality of residuals and heteroskedasticity of variances. As a result, all analyses were repeated using natural logarithm transformed scores of internalizing symptoms. The general pattern of results reported above was replicated, suggesting that mild violations of assumptions did not bias the results. Nonetheless, robust SEs have been reported for all model parameters. To address missing data due to divorce, pattern-mixture models for non-ignorable missing data were conducted. Results of these analyses indicated that the effects of relationship variables on internalizing symptoms did not vary as a function of missing data due to divorce.

DISCUSSION

The principal goal of the present study was to attain a more comprehensive and refined understanding of the role that marriage plays in individual psychopathology. I sought to achieve this goal by (a) clarifying whether marital discord is a global risk factor for the broad class of internalizing symptoms, (b) examining the relative contributions of marital dissatisfaction and specific relationship processes during the transition into marriage to the subsequent development of internalizing symptoms, and (c) implementing a series of methodological refinements (i.e., multi-wave longitudinal design, examination of cross-spouse paths, assessment of sub-threshold symptoms).

Results of Aim 1 provide evidence of a higher-order factor shared among depressive and anxiety symptoms—a general internalizing dimension—in a community sample of couples. The factor structure obtained from Aim 1 provided a psychometrically sound assessment scheme for creating composite scores of internalizing symptoms.

Additionally, expanding upon previous research demonstrating the fluctuation of depressive symptoms over time, growth curve analyses suggested that internalizing symptoms wax and wane over the early years of marriage. Results of Aim 2 indicated that marital dissatisfaction during the transition into marriage is a risk factor for subsequent internalizing symptoms over the first 7 years of marriage for husbands but not for wives. This finding is in contrast to research and theory suggesting that marital discord may be a greater risk factor for depression for wives than for husbands. Here are two possible explanations for this surprising finding. First, perhaps the importance of marriage for husbands versus wives varies during different life transitions. Based on the results of the present study, global marital satisfaction during the transition into marriage appears critical to men's subsequent mental health; however, the impact of satisfaction on wives' psychopathology may become more salient at a different transitional point (e.g., during the transition into parenthood when women are at risk for post-partum depression).

This interpretation is consistent with prior research indicating that marital satisfaction is more strongly associated with depressive symptoms for wives than for husbands.

Results of Aim 3 suggest that the extent to which marriages are characterized by disrespect, power asymmetry and partner control at the onset of marriage is just as detrimental to husbands' mental health as is global marital dissatisfaction. Disrespectful behaviors (e.g., being belittled by one's wife, not being treated as an equal partner in the marriage) may contribute to low self-esteem and feelings of worthlessness, which are key features of depression. Spousal control may be manifested in two ways. First, it may be in the form of husbands being the —head of the household such that they have the majority of the responsibilities in the relationship, leading them to feel anxious and overwhelmed.

Alternatively, issues of power and control may be characterized in the opposite manner with husbands having little say over what happens in their relationships and little control over how they spend their time, how the household is run, or how money is spent which in turn, may lead to feelings of helplessness or hopelessness and isolation. Indeed, in the present study, exactly half of couples with imbalance of power and control in the relationship included husbands with more control whereas the other half included wives with more control. Behavioral theories suggest that losing touch with naturally reinforcing activities in one's environment is a major contributing factor in depression. Thus, it is not surprising that a lack of freedom to engage in individual interests and pursue personal goals—as the result of having excessive responsibilities or little personal freedom— may lead husbands to experience symptoms of depression.

For wives, a lack of closeness, warmth, affection, and interdependence in one's relationship (emotional intimacy) at the onset of marriage was a risk factor for subsequent internalizing symptoms. Researchers have speculated that close relationships are especially central to the identities of women; thus, it is not surprising that a lack of intimacy and closeness in one's marital relationship—the most central of all close relationships—is associated with greater symptoms during the first years of marriage. Nevertheless, the question remains: Why was emotional intimacy associated with symptoms but global marital satisfaction was not? One possible explanation is that, at least for wives, global satisfaction and specific relationship processes differ with regard to the immediacy of their effects on individual psychopathology.

In sum, marital dissatisfaction appears to have an acute effect on wives' symptoms whereas low levels of emotional intimacy play a more chronic, perhaps insidious role in women's mental health. Results of the present study also highlight the importance of examining the specific aspects of the marital relationship that have the greatest impact on psychological symptoms – as opposed to simply examining global relationship satisfaction. First, if I had overlooked relationship processes, I might have concluded that relationship functioning at the onset of marriage only affects men's mental health over the first 7 years of marriage (results of Aim 2). However, examining specific processes in Aim 3 revealed that marital functioning does affect women's long-term mental health and, more specifically, that high levels of intimacy, trust and emotional closeness are critical. The present study also helps to explain sex differences in the role that marriage plays in individual

psychopathology. Depression is more prevalent in women than in men, and researchers have speculated that marriage plays a greater role in women's mental health as they tend to be more interpersonally oriented.

The results of the present study support the notion that sex differences do exist in the marital discord-internalizing symptoms link, but challenge current conceptualizations of the nature of these sex differences. For example, global marital dissatisfaction at the onset of marriage appears to be a risk factor for husbands but not for wives. Specifically marital dissatisfaction seems to have an acute and temporary effect on wives' symptom and a more insidious and persistent impact on husbands' symptoms (over the first 7 years of marriage).

A more notable finding regarding sex differences is that the specific aspects of the marital relationship most influential to mental health differ for husbands and wives.

Asymmetry in power and control is a risk factor for men (regardless of the direction of the asymmetry) whereas low levels of emotional intimacy represent a risk factor for women. This finding challenges the assumption that one's marital relationship is more important to wives than husbands and, consequently, that wives benefit more from marriage with regard to their mental health. Rather, marital relationships are important to the mental health of both men and women, but in different ways. I call for researchers to conduct more sophisticated research focused on specific relationship processes to further clarify the nature of these sex differences.

With regard to clinical implications, relationship processes can be directly targeted in interventions, whereas global satisfaction must be indirectly targeted by enhancing marital functioning; therefore, results of the present study have tremendous clinical utility. I was able to identify specific clinical targets for interventions aimed at preventing internalizing disorders. For wives, it may be sufficient to focus on enhancing emotional intimacy to prevent the development of symptoms. For husbands, maximizing global satisfaction may be important, but helping couples build relationships characterized by mutual respect and a balance of control and decision-making appears to be an optimal starting point.

Finally, the current study has important theoretical implications. One of the most widely applied frameworks of mental illness—the diathesis-stress framework—does not recognize the unique role of the marital relationship in the developmental course of psychopathology. Results of the present study indicate that incorporating relationship factors such as power and control and emotional intimacy into this model may greatly enhance its explanatory power. Understanding how marital processes fit into a diathesis-stress framework is particularly important given that enduring vulnerabilities are stable and environmental stressors are largely uncontrollable whereas relationship processes can be -- and have been -- successfully targeted in interventions. Accordingly, I call for researchers to examine how marital processes interact with diatheses and stressors that originate outside of the marital relationship to influence the developmental course of internalizing symptoms. To the extent that relationship processes are more routinely incorporated into existing etiological theories, these theories—and the interventions that they inform—are likely to be far more effective.

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