

Assessing Dysfunctional Cognition in Marriage: A Reconsideration of the Relationship Belief Inventory

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Although the Relationship Belief Inventory (RBI) is used widely in marital research, its psychometric properties have not been examined separately for men and women, it has not been validated in relation to observational measures, and the reliability of some of its scales has been questioned. To address these issues, 43 couples completed the RBI and a measure of marital satisfaction and were observed while discussing a marital difficulty. The reliability and validity of the RBI scales did not differ with gender. Wives' higher RBI scores correlated with lower rates of avoidant behavior and higher rates of negative behavior, and husbands' higher RBI scores correlated with a greater tendency to reciprocate negative behavior. Finally, coefficient alpha exceeded .70 for 3 of the 6 RBI scales. The psychometric and theoretical status of the RBI is evaluated on the basis of these findings.

Psychological models of marriage that emphasize couples' interpersonal skills and behavioral exchanges have been expanded in recent years to include a variety of cognitive factors that are hypothesized to initiate or maintain marital distress (e.g., Baucom & Epstein, 1990). A widely accepted assumption in these models is that a spouse's unrealistic or inappropriate beliefs about marriage contribute to his or her marital difficulties. Cognitive-behavioral marital therapy is therefore designed, in part, to modify these beliefs in order to improve the quality of marital interaction and the marital relationship.

The purpose of the present research is to evaluate the instrument commonly used to assess spouses' dysfunctional beliefs about marriage, the Relationship Belief Inventory (RBI; Eidelson & Epstein, 1982). This analysis is motivated, on one hand, by the popularity of the RBI in studies of both basic processes in relationships (e.g., Kurdek, 1991) and marital therapy outcomes (e.g., Baucom, Sayers, & Sher, 1990) and, on the other hand, by recent questions that have been raised about its utility (Emmelkamp, Krol, Sanderman, & Ruphan, 1987; Emmelkamp et al., 1988; cf. Epstein & Baucom, 1988). Additional examination of the psychometric properties of the RBI therefore appears necessary before recommendations can be made for its use in empirical and clinical applications.

Development, Reliability, and Validity of the Relationship Belief Inventory

To develop the RBI, Eidelson and Epstein (1982) asked 20 marital therapists to identify beliefs about intimate relationships that seemed to cause the most marital difficulties for their clients. One hundred and twenty-eight items were then written to measure the beliefs that were cited frequently by the therapists. After examining item variances and item-total correlations in a sample of 47 clinic couples, they reduced the inventory to five 12-item scales. These 60 items were administered to a second sample of 100 couples and, on the basis of resulting item characteristics, Eidelson and Epstein dropped 4 items from each scale to produce the 40-item RBI currently in use (the RBI and its scoring criteria can be found in Baucom & Epstein, 1990, pp. 442-444). The RBI assesses five dysfunctional beliefs: disagreement is destructive to a relationship; partners should be able to "mindread" or sense each other's thoughts and feelings without communicating overtly; partners cannot change themselves or their relationship; one must be a perfect sexual partner; and men and women have fundamentally different personalities and relationship needs. Higher scores indicate greater endorsement of the dysfunctional belief.

Eidelson and Epstein (1982) found that coefficient alpha for the five scales of the RBI ranged from .72 to .81, with intercorrelations among the scales varying from .17 to .44. The validity of the instrument was supported by data indicating that higher scores on each scale correlated negatively with lower levels of marital satisfaction. Also, in a sample of couples seeking marital therapy, scores on the Disagreement is Destructive, Mindreading is Expected, and Partners Cannot Change scales were all found to be significantly correlated with pessimism about the success of the therapy, a desire to terminate rather than maintain the marriage, and a preference for individual rather than marital treatment. Finally, all RBI scales except the Sexes are Different scale correlated significantly and positively with an instrument assessing irrational beliefs about the self.

Emmelkamp et al. (1987), using samples of 432 community

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couples and 179 couples seeking marital therapy, corroborated and extended some of Eidelson and Epstein's (1982) findings but also raised some important concerns about the RBI. On one hand, Emmelkamp et al. found that all scores on the RBI except Mindreading is Expected were related to higher levels of marital distress in the community sample, that RBI scores were largely unrelated to social desirability, and that RBI scores were relatively stable over 2-week and 12-week test-retest intervals. Total RBI scores also correlated significantly and positively with irrational beliefs about the self in both the community and clinical samples. In contrast to earlier findings, however, coefficient alpha was found to be somewhat low, especially in the community sample (median alpha = .54; median alpha in clinical sample = .68), and on three scales, the nondistressed community sample scored significantly higher in their endorsement of dysfunctional beliefs than did the sample seeking marital therapy.

Overview of the Present Study

Taken together, the analyses presented by Eidelson and Epstein (1982) and Emmelkamp et al. (1987) indicate that the RBI requires further investigation to establish more clearly its psychometric utility as a measure of dysfunctional beliefs about marriage. The purpose of the present study was to provide data that fill this need by addressing the three specific issues described below.

Gender Differences

One major purpose of this study was to examine whether the RBI has similar measurement characteristics for husbands and wives. Neither Eidelson and Epstein (1982) nor Emmelkamp et al. (1987) analyzed RBI scores separately for husbands and wives, yet it is important to determine whether the different patterns of findings obtained for husbands and wives in prior research with the RBI (e.g., Baucom et al., 1990; Epstein, Pretzer, & Fleming, 1987; Gaelick, Bodenhausen, & Wyer, 1985; Kurdek, 1991) are due to valid differences in dysfunctional beliefs or whether they are artifacts of differential reliabilities or scale variances across genders. Accordingly, standard deviations, coefficients alpha, intercorrelations among scales, and correlations with marital satisfaction were examined separately for husbands' and wives' RBI scores.

Separate consideration of husbands' and wives' RBI scores also permits examination of a neglected but potentially interesting facet of the scale's validity. Because the construct assessed by the RBI is the maladaptive beliefs an individual holds about marriage in general rather than in relation to his or her own marriage, and because it is often assumed that dysfunctional beliefs about marriage derive in part from experiences in previous relationships that do not involve the current partner (Epstein & Eidelson, 1981; see also, Bennun, 1986), it could be hypothesized that husbands' and wives' RBI scores should not correlate above chance levels. Epstein and Eidelson (1981) found some support for this hypothesis with a preliminary version of the RBI (composed of three 12-item scales) administered to a sample with a restricted range of marital satisfaction. A recent study by Karney, Bradbury, Fincham, and Sullivan

(1992) also found that husbands' and wives' attributions for marital events were largely uncorrelated. Although these results lead us to expect that spouses' RBI scores will be unrelated, a plausible alternative is that their scores may be related due either to mate selection preferences (e.g., people with similar beliefs about appropriate behavior in marriage may tend to marry one another) or to their experiences in marriage that result in shared views about realistic beliefs, attitudes, and expectations for marital behavior. These two alternatives were examined with the current, complete version of the RBI and a sample of couples that varied widely in their level of marital satisfaction.¹

Relationship Beliefs and Observations of Spouse Behavior

The second major purpose of this study was to investigate the association between RBI scores and observed spouse behavior. Despite Eidelson and Epstein's (1982) call for validation studies of the RBI that examine spouse behavior, the validity of the RBI has been examined only in relation to other self-report inventories, including measures of marital satisfaction, irrational beliefs about the self, and social desirability (Eidelson & Epstein, 1982; Emmelkamp et al., 1987). Additional studies have shown, for example, that higher RBI scores correspond with self-reports of poorer communication (Emmelkamp et al., 1987; see also, Roehling & Robin, 1986), more critical evaluations of the partner's communication (Epstein, Pretzer, & Fleming, 1987), and perceptions that the partner's communication is relatively hostile and uncaring (Gaelick et al., 1985). Although these findings are important in lending support to the validity of the RBI and to the theoretical assertion that dysfunctional beliefs about marriage interfere with marital problem solving (Baucom & Epstein, 1990), the magnitude of these validity coefficients may be inflated by both self-report method variance and variance that the RBI and measures of communication share with marital satisfaction.

To address these limitations, RBI scores were examined in relation to observed communication behavior in marital interaction, before and after controlling for marital satisfaction. The existing self-report studies lead to the hypothesis that higher RBI scores will covary with higher rates of negative or hostile behavior and lower rates of positive or empathic behavior exhibited by spouses in a discussion of a marital difficulty. The finding that higher RBI scores correlate with a tendency to view the partner as the cause of marital problems (Epstein et al., 1987) suggests further that higher RBI scores will be associated with lower levels of avoidant behavior. There is no a priori reason to expect that associations with behavior will vary in strength

¹ This prediction, that husbands' and wives' RBI scores will not correlate significantly, can be questioned because it involves showing that the null hypothesis is true rather than false. Although this must be borne in mind in evaluating the test of this hypothesis, it is also important to emphasize that husbands' and wives' scores on self-report instruments are very often significantly correlated. For example, in a study of 566 couples, Eysenck and Wakefield (1981) reported a correlation of .73 between husbands' and wives' marital satisfaction scores. In view of this tendency, the attempt to show that husbands' and wives' scores are independent on the RBI appears to be a valid undertaking.

across RBI scales. However, in calling for validation studies using behavioral samples of couples' interactions, Eidelson and Epstein (1982) proposed that the extent to which individuals endorse the belief that disagreement is destructive would covary with the degree to which they exhibit avoidant behavior; this hypothesis is tested here.

In addition to validating RBI scores against rates of behavior, sequences of behavior were examined. A large literature indicates that the reciprocation of negative behavior is the hallmark of marital discord (see Baucom & Adams, 1987, Christensen, 1987, and Weiss & Heyman, 1990, for reviews) and, in view of the assumption that maladaptive beliefs affect how an individual appraises and responds to interpersonal events (e.g., Baucom & Epstein, 1990; Smith, 1982), we tested the hypothesis that a spouse's RBI scores would covary significantly with his or her tendency to reciprocate the negative behavior exhibited by his or her partner. Although failure to support this hypothesis would not necessarily call into question the validity of the RBI, support for the hypothesis would lend greater credibility to its use and to the assumption that dysfunctional beliefs mediate behavioral exchanges in marriage.

Replication of Prior Findings

In view of the discrepant findings reported by Eidelson and Epstein (1982) and Emmelkamp et al. (1987), a third purpose of the study was to examine the internal consistency of the RBI scales and their relation to marital satisfaction. If Emmelkamp et al.'s findings can be replicated, it may be necessary to revise the RBI and thereby produce a more valid and reliable instrument. The intercorrelations of the RBI scales will also be examined to explore the degree of redundancy among them, which may indicate further refinements.

Method

Subjects

Subjects were recruited through advertisements in local newspapers and, to sample the full range of marital quality, subjects seeking marital therapy from a local clinic also were recruited. The 43 couples (32 from the community, 11 seeking therapy) selected to participate had been married an average of 6.7 years ($SD = 6.8$), had 1.5 children ($SD = 1.4$; mode = 1), and had a median family income of approximately \$22,500. Husbands averaged 32.3 years of age ($SD = 7.9$) and 15.0 years of formal education ($SD = 2.5$), and obtained a mean score of 100.9 ($SD = 22.7$) on the Marital Adjustment Test (MAT; Locke & Wallace, 1959). Wives averaged 30.6 years of age ($SD = 6.7$) and 14.4 years of formal education ($SD = 2.2$), and obtained a mean score of 94.2 ($SD = 28.9$) on the MAT. The sample was predominantly White (41 husbands were White, 2 were Asian; 40 wives were White, 1 was Asian, 1 was African American, and 1 was Hispanic). Husbands and wives did not differ in their marital satisfaction scores, paired $t(42) = 1.63, p > .10$.

Procedure

On arrival at the laboratory, spouses were separated and asked to complete a consent form, a demographics questionnaire, a measure of marital satisfaction (the Marital Adjustment Test), the RBI, and an instrument to assess the degree to which they experienced a number of common marital problems (the Inventory of Marital Problems). The

experimenter examined the responses of both spouses on the latter form and summed, for each topic, the husband's and wife's independent ratings of the degree to which each topic was experienced as a difficulty in the marriage. Subjects were then reunited, seated facing each other, and instructed to "try to work toward a mutually agreeable solution" to the one problem they both viewed as presenting difficulties for them. The experimenter left the room, prepared the cameras and videocassette recorder for taping, and signaled the couple to begin their discussion. The couple was signaled to end their discussion after 15 minutes had elapsed. Couples were then debriefed and paid \$30.00 for their participation. Videotapes of the interactions were later coded for the problem-solving behaviors that spouses exhibited. These data were collected as part of a large project on marital interaction and family functioning; data from clinic couples were obtained before therapy had begun.

Questionnaires

Marital Adjustment Test (MAT). Marital satisfaction was assessed with the 15-item MAT, an internally consistent (split half = .90) and widely used index of marital satisfaction that discriminates between nondistressed spouses and spouses with documented marital problems (Locke & Wallace, 1959). Scores on the MAT can range from 2 to 158.

RBI. The RBI was administered to measure spouses' unrealistic beliefs about marriage (Eidelson & Epstein, 1982). The five 8-item scales on the RBI reflect beliefs that disagreement is destructive to a relationship (e.g., *If your partner expresses disagreement with your ideas, s/he probably does not think highly of you*), that partners should be able to sense each other's thoughts and feelings without communicating overtly (e.g., *A partner should know what you are thinking or feeling without you having to tell*), that partners cannot change themselves or their relationship (e.g., *Damages done early in a relationship probably cannot be reversed*), that one must be a perfect sexual partner (e.g., *I get upset if I think I have not completely satisfied my partner sexually*), and that men and women have fundamentally different personalities and relationship needs (e.g., *You can't really understand someone of the opposite sex*). For each item the respondent indicates on a 6-point scale the extent to which they believe it is true or false (0 = *I strongly believe that the statement is false*; 5 = *I strongly believe that the statement is true*). Fifteen of the 40 items are reverse-scored. A Total RBI score can be obtained by summing the five scale scores. The minimum score on each scale is 0, the maximum scale score is 40, and the maximum Total score is 200.

Inventory of Marital Problems. The topic for the 15-minute discussion was derived from spouses' ratings of 19 issues (e.g., in-laws, sex, trust, finances) that are common problems in marriage (Geiss & O'Leary, 1981). Spouses rated the extent to which each item was a source of difficulty or disagreement in their marriage (1 = *not a problem*, 11 = *major problem*).

Behavioral Coding

Verbatim transcripts of the interactions were prepared and trained coders used the transcripts and videotapes to assign one of seven codes to each speaking turn. These codes, which composed the Verbal Tactics Coding Scheme (see Sillars, 1981), were reduced as recommended by Sillars to three summary codes in the following manner: Behaviors reflecting denial of the problem or shifting of the discussion away from the problem were coded as avoidant; behaviors reflecting hostility or rejection of the partner's views were coded as negative; and behaviors reflecting empathy for the partner and neutral or positive information about the problem were coded as positive. Coders were also allowed to assign an "other" code to behaviors, but to reduce the number of signif-

ificance tests conducted and to circumvent the problem of ipsative data that results from the analysis of proportions, these codes were omitted from analysis. Coders were instructed to make a global evaluation of each speaking turn, attending to the verbal and nonverbal components of the behavior. Independent coding of 20% of the videotapes revealed that coders were reliable (coefficient kappa = .84).

To control for variation across spouses in their number of speaking turns, the number of times each of the three codes was emitted by each spouse in the interaction was divided by their number of speaking turns. To stabilize the variance of these proportions, they were then subjected to an arcsin transformation (see Kleinbaum & Kupper, 1978).

To examine the sequential patterning of the three classes of behavior between husbands and wives in the interaction, lag sequential analysis was performed on the behavioral data (see Sackett, 1979, for a discussion of lag sequential analysis and Allison & Liker, 1982, for a description of the z score computation used here). This procedure yields z scores that represent the likelihood that a behavior by one spouse will be followed by a specified behavior by the partner, controlling for the base rate with which the partner exhibits that behavior. Thus, for example, this procedure generates values reflecting the likelihood that the wife will respond to the husband's negative behavior with a negative behavior of her own, taking into account her general tendency to exhibit negative behavior in the interaction (for an introduction to lag sequential analysis, see Bradbury & Fincham, 1991a). Application of lag sequential analysis produced nine z scores representing husbands' immediate (i.e., Lag 1) responses to their partner, and nine z scores representing wives' immediate responses to their partner, as each spouse could respond to each of three partner behaviors with any one of their own three behaviors. Sequences of Lag 1 were selected for analysis because no hypotheses were offered for longer lags.

Results

RBI scores were available for all 43 husbands and, as a result of missing data, for 42 wives. Because of technical difficulties in recording interactions, behavioral data were available on 40 couples.

Comparison of Husbands and Wives

Comparison of means and standard deviations. Means and standard deviations on the RBI scales for the full sample and for husbands and wives are presented in Table 1. The Total score of 74.09 for the full sample is comparable to the score of 74.59 reported by Eidelson and Epstein (1982) for their clinical sample and to the scores of 77.8 and 78.7 reported by Emmelkamp et al. (1987) for their distressed and nondistressed samples, respectively.

To test the hypothesis that husbands and wives differ in their RBI scores, a multivariate analysis of variance (MANOVA) was conducted using spouse (i.e., husband versus wife) as a within-dyad factor and using the five scale scores as dependent variables. This analysis was significant, Wilks's $F(5, 36) = 6.24, p < .001$, and subsequent univariate analyses indicated that husbands endorsed to a greater degree than wives the beliefs that one must be a perfect sexual partner and that men and women have fundamentally different personalities and relationship needs. In a separate analysis, the difference between husbands' and wives' Total RBI scores was found to be nonsignificant ($p < .09$). The results of these univariate tests are presented in Table 1.

These results indicate that it may be most appropriate to examine husbands' and wives' RBI scores separately, which has not been done in prior psychometric evaluations of the scale. However, separate consideration of husbands' and wives' scores may lead to misleading results if husbands and wives differ in the degree of variability in their RBI scale scores (e.g., correlations could be higher in one group simply because scores are more variable). To examine this possibility, a series of F tests for variance was computed using husbands' and wives' variances for each scale and for the Total score. In each case, husbands and wives did not differ in the degree of variability in their responses, all $F(1, 41) < 1.28$, all $p > .05$.

Comparison of correlations. Intercorrelations among the RBI scores for husbands and wives are shown in Table 2. Whereas husbands and wives differed in scores on some RBI scales, a series of Fisher's r to z transformations comparing corresponding correlations in Table 2 indicate that husbands and wives do not differ in the degree to which their scale scores intercorrelate, all $z < 1.65$, all $p > .05$, two-tailed. Compared with Eidelson and Epstein's (1982) finding that all RBI scales intercorrelated to a significant degree (range = .17 to .44; $Mdn = .29$; see also Epstein et al., 1987), only half or fewer of the present correlations were significant (for husbands, range = $-.08$ to .59, $Mdn = .30$; for wives, range = $-.08$ to .65, $Mdn = .23$). Finally, correlations between each scale and the Total RBI score indicate that the Disagreement is Destructive and Mindreading is Expected scales covary most closely with the Total score for husbands as well as wives (see Table 2).

Association between husbands' and wives' RBI scores. We hypothesized that husbands' and wives' RBI scale scores would be independent of one another, because the RBI is designed to measure dysfunctional beliefs about marriage in general and because these beliefs are thought to derive from experiences in prior relationships (e.g., family of origin) that did not involve the spouse. In support of this hypothesis, correlations computed between the six corresponding RBI scales were not significant, with one exception—Mindreading is Expected, $r(41) = .28, p < .05$; however, this correlation was not reliable when spouses' level of marital satisfaction was controlled, partial $r(40) = .25, ns$. The correlation between husbands' and wives' Total scores was .13, partial $r(40) = .07$, and the median correlation between scales was .20, median partial $r(40) = .18$. Taken together, these results suggest that husbands' and wives' dysfunctional beliefs are largely unrelated. In contrast, husbands' and wives' marital satisfaction scores were significantly correlated, $r(42) = .48, p < .001$.

Relationship Beliefs and Spouse Behavior

Associations between RBI scores and behavioral rates. In testing the prediction that RBI scores covary with behavior, it is important to recognize that the resulting validity coefficients might be inflated by the variance that each measure shares with marital satisfaction. To test this hypothesis, partial correlations controlling for MAT scores were computed between RBI scores and rates of avoidant, negative, and positive behaviors. These analyses, presented in Table 3, indicate that RBI scores are unrelated to rates of behaviors exhibited by husbands and to rates of positive behavior exhibited by wives. For wives, how-

Table 1
Means, Standard Deviations, and Husband-Wife Comparisons for the Scales of the Relationship Belief Inventory (RBI)

| RBI scale | Full sample (N = 85) | | Husbands (n = 43) | | Wives (n = 42) | | Univariate comparison of husbands and wives |
|-----------|----------------------|-------|-------------------|-------|----------------|-------|---|
| | M | SD | M | SD | M | SD | |
| DD | 13.89 | 5.72 | 14.09 | 5.65 | 13.69 | 5.85 | $F(1, 40) = .63, ns$ |
| ME | 15.49 | 5.17 | 15.47 | 4.92 | 15.52 | 5.47 | $F(1, 40) = .04, ns$ |
| PC | 12.31 | 4.25 | 12.53 | 4.46 | 12.07 | 4.07 | $F(1, 40) = 1.12, ns$ |
| SP | 16.08 | 5.16 | 17.16 | 4.76 | 14.98 | 5.37 | $F(1, 40) = 5.48, p < .05$ |
| SD | 16.32 | 5.71 | 18.05 | 5.21 | 14.55 | 5.72 | $F(1, 40) = 18.85, p < .001$ |
| Total | 74.09 | 17.19 | 77.30 | 16.55 | 70.81 | 17.41 | $F(1, 40) = 3.09, ns$ |

Note. Minimum scale score is 0, maximum subscale score is 40, and maximum total scale score is 200. Higher scores reflect greater endorsement of a dysfunctional belief. DD = Disagreement is Destructive, ME = Mindreading is Expected, PC = Partners Cannot Change, SP = Sexual Perfectionism, SD = Sexes are Different.

ever, relatively dysfunctional beliefs correlated significantly with lower rates of avoidant behavior (for Partners Cannot Change, Sexes are Different, and Total scores) and higher rates of negative behavior (for Mindreading is Expected, Partners Cannot Change, and Total scores).²

These latter results are consistent with predictions and with the premise that dysfunctional beliefs interfere with marital problem solving (Baucom & Epstein, 1990). They indicate that wives who hold relatively maladaptive beliefs are more critical and hostile in interaction and that they are less likely to avoid discussion of marital difficulties. Although this tendency to confront rather than avoid difficulties could be seen as an adaptive and productive concomitant of dysfunctional beliefs, the finding that spouses who hold relatively dysfunctional beliefs also tend to view their partner as the cause of marital problems (Epstein et al., 1987) suggests instead that wives were confronting marital problems because they saw their partner as a major contributor to those problems. Finally, the specific hypothesis raised by Eidelson and Epstein (1982), that higher Disagreement is Destructive scores would covary with higher rates of

avoidant behavior, was not supported for husbands or wives (see Table 3).

Associations between RBI scores and behavioral sequences. RBI scores were correlated next with the z scores that reflect the degree of sequential interdependence between husbands' and wives' behaviors; marital satisfaction was again partialled from these correlations. These analyses therefore describe the association between a spouse's RBI score and the likelihood that that spouse responded with Behavior y to the partner's Behavior x , independent of the spouse's marital satisfaction. As noted earlier, the z scores are conditional probabilities in that they control for the overall probability of the spouse exhibiting Behavior y . The results of these analyses are shown in Table 4.

Unlike the results for behavioral rates, which were significant only for wives, the results for behavioral sequences are significant for husbands and wives. For Total scores, Table 4 shows that, to the extent that they hold maladaptive or unrealistic beliefs, (a) a husband is more likely to reciprocate his wife's negative behavior and less likely to avoid discussion of the problem after his wife has exhibited a positive behavior and (b) a wife is less likely to respond positively after her husband has exhibited a negative behavior. Because Total scores may over-emphasize the consistency of results across scales, results for the five subscales were also examined and, because of the number of correlations computed, an alpha level of .01 was adopted. This analysis showed that husbands were more likely to reciprocate negative partner behavior to the extent they believe that Disagreement is Destructive in relationships, partial $r(38) = .46, p < .01$.

A series of Fisher's r to z transformations comparing corresponding correlations (when at least one of them reached statistical significance) for husbands' and wives' behavioral sequences yielded two significant differences. The association between the RBI Total score and the tendency to reciprocate

Table 2
Intercorrelations Among Scales of the Relationship Belief Inventory (RBI) for Husbands ($n = 43$; Below Diagonal) and Wives ($n = 42$; Above Diagonal)

| RBI scale | RBI scale | | | | | |
|-----------|-----------|--------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. DD | — | .65*** | .24 | .45*** | .19 | .79*** |
| 2. ME | .59*** | — | .21 | .51*** | .13 | .78*** |
| 3. PC | .45*** | .24 | — | .08 | .44** | .55*** |
| 4. SP | .36** | .21 | .18 | — | -.08 | .61*** |
| 5. SD | .41** | .38** | .10 | -.08 | — | .51*** |
| 6. Total | .87*** | .75*** | .58*** | .49*** | .58*** | — |

Note. DD = Disagreement is Destructive, ME = Mindreading is Expected, PC = Partners Cannot Change, SP = Sexual Perfectionism, SD = Sexes are Different.

* $p < .05$. ** $p < .01$. *** $p < .001$.

² A series of Fisher's r to z transformations indicated that the significant correlations obtained for wives' behavioral rates did not differ reliably from those obtained for husbands, all $z < 1.3$, all $p > .05$, two-tailed.

Table 3
Partial Correlations (Controlling for Marital Satisfaction)
Between Relationship Belief Inventory Scales and Rates
of Avoidant, Negative, and Positive Behaviors

| Behavior | Total score partial <i>r</i> | Subscale score partial <i>r</i> | | | | |
|---------------------------|------------------------------|---------------------------------|------|-------|------|--------|
| | | DD | ME | PC | SP | SD |
| Husbands (<i>n</i> = 40) | | | | | | |
| Avoidant | -.07 | -.02 | -.07 | -.15 | .14 | -.14 |
| Negative | .13 | .22 | .03 | .26 | -.12 | .00 |
| Positive | .00 | -.12 | .09 | -.10 | .01 | .12 |
| Wives (<i>n</i> = 39) | | | | | | |
| Avoidant | -.27* | -.16 | -.09 | -.33* | .12 | -.40** |
| Negative | .27* | .15 | .33* | .35* | -.19 | .22 |
| Positive | -.11 | -.03 | -.26 | -.14 | .05 | .06 |

Note. DD = Disagreement is Destructive, ME = Mindreading is Expected, PC = Partners Cannot Change, SP = Sexual Perfectionism, SD = Sexes are Different. Higher scores reflect greater endorsement of a dysfunctional belief, a higher level of marital satisfaction, or a higher rate of behavior.

* *p* < .05. ** *p* < .01.

negative behavior was greater among husbands than among wives, *z* = 2.15, *p* < .05, two-tailed, and the association between the RBI Total score and the tendency to respond to a negative behavior with a positive behavior was greater among wives than among husbands, *z* = 2.19, *p* < .05, two-tailed.

Table 4
Partial Correlations (Controlling for Marital Satisfaction)
Between Relationship Belief Inventory (RBI) Total Scores
and Conditional Probability of Behavioral Sequences

| Behavior sequence | RBI total score partial <i>r</i> |
|---------------------------|----------------------------------|
| Husbands (<i>n</i> = 40) | |
| W avoidant → H avoidant | .11 |
| W avoidant → H negative | .13 |
| W avoidant → H positive | .02 |
| W negative → H avoidant | .14 |
| W negative → H negative | .49** |
| W negative → H positive | .18 |
| W positive → H avoidant | -.31* |
| W positive → H negative | .02 |
| W positive → H positive | -.07 |
| Wives (<i>n</i> = 39) | |
| H avoidant → W avoidant | .06 |
| H avoidant → W negative | -.21 |
| H avoidant → W positive | .17 |
| H negative → W avoidant | -.27 |
| H negative → W negative | .03 |
| H negative → W positive | -.32* |
| H positive → W avoidant | .12 |
| H positive → W negative | -.24 |
| H positive → W positive | -.15 |

Note. For the behavior sequences, H = husband and W = wife.
* *p* < .05. ** *p* < .01.

In sum, after controlling for level of marital satisfaction, the association between RBI scores and behavioral sequences seems most pronounced in the case of husbands' negative responses to wives' negative behavior. This result is noteworthy in view of the well-established finding that reciprocation of negative behavior is the most powerful behavioral discriminator of distressed and nondistressed marriages and that, to date, little is known about the factors that contribute to negative reciprocity in marriage.

Replication of Prior Findings

Reliability. Coefficients alpha for the RBI scales and for the Total RBI score, for the full sample and for husbands and wives, are shown in Table 5. The internal consistency of the scales did not differ appreciably for husbands and wives, and in each case the Total RBI score exceeded the minimum criterion of reliability recommended for research instruments (i.e., $\alpha > .70$; see Nunally, 1978). The alpha for the Total score of .83 is comparable to the values reported by Emmelkamp et al. (1987) which, along with the results of Eidelson and Epstein (1982), are shown in Table 5 for purposes of comparison. With regard to reliability estimates for individual scales, coefficient alpha in the present sample exceeds .70 only for the Disagreement is Destructive and Mindreading is Expected scales. As in the study by Emmelkamp et al., alpha was less than .70 for Partners Cannot Change, Sexual Perfectionism, and Sexes are Different. Inspection of statistics for individual items indicated that coefficient alpha could not be improved upon to any substantial degree through item deletion. Finally, reliability estimates based on split-half computations were found to parallel closely those based on coefficient alpha (Spearman-Brown coefficients for husbands and wives exceeded .70 for Disagreement is Destructive, Mindreading is Expected, and Total scores).

Validity. Correlations between RBI scores and marital satisfaction scores are shown in Table 6. In contrast to Eidelson and Epstein's (1982) finding that all scales correlate significantly with Marital Adjustment Test scores in their combined sample, the present results indicate that Mindreading is Expected and Sexual Perfectionism scores are unrelated to marital satisfaction.³ Using different measures of marital satisfaction, Emmelkamp et al. (1987) also reported that Mindreading is Expected scores were unrelated to marital satisfaction in their community sample, and Epstein et al. (1987) reported that Mindreading is Expected scores were unrelated to marital satisfaction for husbands but not wives.

In sum, when marital satisfaction is adopted as the criterion, the present results corroborate previous findings that call into question the construct validity of the Mindreading is Expected scale of the RBI. The present results also raise questions about the validity of the Sexual Perfectionism scale.

Secondary Analyses

The absence of associations between marital satisfaction and the Mindreading is Expected and Sexual Perfectionism scales is

³ Corresponding correlations in Table 6 were compared in a series of Fisher's *r* to *z* transformations; all comparisons were not significant, all *z* < .98, all *p* > .05, two-tailed.

Table 5
Coefficient Alpha for Scales of the Relationship Belief Inventory, From the Present Study, From Eidelson & Epstein (1982), and From Emmelkamp et al. (1987)

| Scale | Present study | | | Eidelson & Epstein (1982) | Emmelkamp et al. (1987) | |
|-------|---------------------------------|------------------------------|---------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| | Full sample (<i>n</i> = 85) | Husbands (<i>n</i> = 43) | Wives (<i>n</i> = 42) | Combined sample (<i>n</i> = 200) | Community sample (<i>n</i> = 414) | Clinic sample (<i>n</i> = 179) |
| DD | .78 | .79 | .77 | .81 | .65 | .77 |
| ME | .72 | .72 | .73 | .75 | .44 | .69 |
| PC | .57 | .59 | .56 | .76 | .51 | .68 |
| SP | .65 | .64 | .64 | .72 | .54 | .62 |
| SD | .63 | .57 | .61 | .72 | .62 | .65 |
| Total | .83 | .83 | .83 | — | .76 | .83 |

Note. DD = Disagreement is Destructive, ME = Mindreading is Expected, PC = Partners Cannot Change, SP = Sexual Perfectionism, SD = Sexes are Different.

surprising, particularly in the case of the Mindreading scale, which correlates strongly with RBI Total scores, has adequate internal consistency, appears to have item content that is consistent with how the construct is defined, and is often highlighted in clinical writings as a source of miscommunication between spouses. This result may indicate, for example, that beliefs about mindreading may be adaptive for some couples, that beliefs about mindreading are in fact unrelated to marital satisfaction but are exaggerated among a subgroup of severely distressed couples, or that it is not the expectation that a spouse engage in mindreading but the mindreading itself in the context of interaction (particularly when negative intentions are inferred; see Gottman, 1979) and the inferences that are made about it that create the greatest difficulties; additional data are needed to test these possibilities.

One practical implication of these nonsignificant results is that Revised Total scores can be computed and reanalyzed after dropping the two scales that are unrelated to marital satisfaction, in an effort to improve the RBI as a measure of unrealistic relationship beliefs. Doing so results in a 24-item scale that correlates highly with the 40-item Total scale (for husbands,

$r[42] = .84$; for wives, $r[41] = .91$), has slightly lower internal consistency compared with that of the original Total scale (for husbands, $\alpha = .78$; for wives, $\alpha = .76$), and correlates with marital satisfaction somewhat more strongly compared with the Total scale (for husbands, $r[42] = -.52$, $p < .001$; for wives, $r[41] = -.40$, $p < .005$). As with the Total scores, husbands' Revised Total scores remain unrelated to behavioral rates after partialing for marital satisfaction, all partial $r(38) < .24$, all *ns*; wives' Revised Total scores covary positively with their rates of negative behavior, partial $r(38) = .34$, $p < .05$, and negatively with their rates of avoidant behavior, partial $r(38) = -.44$, $p < .01$. Husbands' Revised Total scores covary positively only with their tendency to reciprocate negative partner behavior, partial $r(38) = .58$, $p < .001$, and wives' Revised Total scores are unrelated to their behavior in the sequential analyses, all partial $r(38) < .30$, all *ns*. Finally, husbands' and wives' Revised Total scores do not correlate significantly, $r(41) = .12$, *ns*. These results indicate that dropping the Mindreading is Expected and Sexual Perfectionism scales yields a version of the RBI that performs at least as well as the original RBI, despite a decrease in coefficient alpha.

Discussion

The RBI has been used widely in basic research on marital distress and in marital therapy outcome research, and it is recommended for use in assessing maladaptive relationship beliefs with couples seeking treatment (see Baucom & Epstein, 1990). Although the RBI has proven to be valuable in these applications, the psychometric properties of the scales have not been examined separately for husbands and wives, all prior efforts to validate the RBI have, to our knowledge, relied solely on self-report data, and questions have been raised about the reliability and validity of various RBI scales (Emmelkamp et al., 1987). The purpose of the present research was to address these limitations in our understanding of data collected with the RBI, and three conclusions appear warranted on the basis of the present findings.

Comparison of Husbands and Wives

First, the psychometric properties of the RBI appear to be comparable for men and women. Specifically, husbands and

Table 6
Correlations Between Marital Satisfaction Scores and Scale Scores on the Relationship Belief Inventory

| Scale | Marital satisfaction | |
|-------|------------------------------|---------------------------|
| | Husbands (<i>n</i> = 43) | Wives (<i>n</i> = 42) |
| DD | -.46*** | -.27* |
| ME | -.17 | -.14 |
| PC | -.30* | -.34* |
| SP | -.17 | .00 |
| SD | -.38** | -.28* |
| Total | -.46*** | -.30* |

Note. DD = Disagreement is Destructive, ME = Mindreading is Expected, PC = Partners Cannot Change, SP = Sexual Perfectionism, SD = Sexes are Different. Higher scores reflect greater endorsement of a dysfunctional belief or higher level of marital satisfaction.

* $p < .05$. ** $p < .01$. *** $p < .001$.

wives did not differ in the variability of their RBI scores, in the degree of intercorrelation among their scores, in coefficient alpha for the scales, and in the degree to which scale scores correlated with marital satisfaction. Establishing that the RBI is equally adequate with male and female samples is valuable because previously reported differences between spouses that were obtained with the RBI can now be attributed with greater confidence to substantive differences rather than to artifacts in measurement.

It is important to recognize, however, that the apparent comparability of the RBI for men and women does not mean that men and women will receive comparable RBI scores or that correlations involving RBI scores will be similar for men and women. In fact, husbands in this study scored nearly 7 points higher on the RBI Total scale than did wives, and different patterns of correlations with the behavioral coding were obtained between husbands and wives. These findings underscore the significance of analyzing husbands' and wives' RBI scores separately, and they raise potentially interesting questions about the source of gender differences in relationship beliefs and the consequences such differences may have for relationship functioning.

In considering the question of where relationship beliefs originate, an important piece of information obtained with the present sample is that husbands' and wives' RBI scores were unrelated, despite a significant correlation in their satisfaction scores. This suggests that relationship beliefs may not be determined by events in the marriage itself but are instead established in prior relationships, such as that with the family of origin. A growing literature indicates that individuals' experiences in their family of origin (e.g., interparental conflict, divorce) can have pervasive negative consequences for their well-being and relationships in adulthood (see Amato & Keith, 1991, for a review). Future studies could be designed to determine whether dysfunctional beliefs about relationships (e.g., that disagreement is destructive) are implicated in this process and, in view of the gender difference observed here, to investigate whether men are more prone to forming such beliefs. An important reason for studying the development of maladaptive relationship beliefs is that they may contribute to interpersonal behaviors that hinder resolution of marital conflict, a topic to which we now turn.

Relationship Beliefs and Spouse Behavior

The second conclusion that can be drawn from the present study is that RBI scores appear to covary reliably with rates and sequences of behavior. Specifically, to the extent that they endorsed higher levels of dysfunctional relationship beliefs on the RBI, spouses were more likely to exhibit negative behavior and less likely to exhibit avoidant behavior (in the case of wives) and more likely to reciprocate negative behavior (in the case of husbands). In addition, wives were less likely to respond positively after the husband's negative behavior, and husbands were less likely to avoid discussion of the problem after the wife's positive behavior, to the extent that their Total RBI scores were in the maladaptive direction. These results were obtained even with variance due to marital satisfaction statistically controlled (which is important in view of the associations between satisfac-

tion and RBI scores) and, although the results for behavioral sequences were weaker in the case of wives' Revised Total scores, they are the first data to our knowledge that support the validity of the RBI without relying exclusively on self-report methods.

By demonstrating an association between an intrapersonal, cognitive variable and interpersonal behavior in marital interaction, the present data lend support to recent formulations that posit such associations and that propose that cognitive variables and their interpersonal manifestations play important roles in how marital satisfaction changes over time (e.g., Baucom & Epstein, 1990; Bradbury & Fincham, 1990, 1991b). Together with longitudinal studies that indicate that behavior exhibited in the context of marital conflict accounts for change in satisfaction (e.g., Bradbury, 1991; Gottman & Krokoff, 1989; see Bradbury & Karney, in press, for a review), the present data raise an important set of questions concerning how behavior and specific cognitions are reciprocally interrelated and how they combine to influence the course of marriage. Prospective multiwave longitudinal studies of RBI scores, other cognitive variables, and interaction are needed to clarify whether maladaptive beliefs can be used to identify marriages at risk for disruption and dissolution.

At a more molecular level, the present findings also raise the question of how dysfunctional beliefs come to be related to specific interactional tendencies, so that, for example, husbands' maladaptive beliefs covary with their increased likelihood of reciprocating wives' negative behavior but not with their own rates of negative behavior. This suggests that husbands' beliefs may be related to how they interpret and respond to particular partner actions rather than to an unconditional tendency to exhibit negative behaviors in conflict discussions. An equally intriguing finding is that the tendency among husbands to reciprocate negative partner behavior was greater to the extent they scored higher on the Disagreement is Destructive subscale. Additional data are needed to confirm this finding, yet it may indicate that this particular belief results from a need on the part of husbands to exert control in the relationship by avoiding conflict. When conflict does occur and wives exhibit negative behavior, husbands who are particularly motivated to retain control may respond with a negative behavior of their own in hope of terminating the negative exchange or reestablishing control. Future studies could shed light on this possibility by investigating RBI scores in relation to husbands' desire for control in marriage, their level of comfort with conflict, and the thoughts and feelings they experience in anticipation of actual laboratory problem-solving discussions.

Psychometric and Theoretical Status of the RBI

A third conclusion that can be drawn with these results is that the RBI scales appear to vary in their reliability and validity, with some of the scales falling below acceptable levels of reliability; the results presented here must be interpreted in light of these psychometric findings. Specifically, taking into account all available reliability estimates for the RBI scales (see Table 3), relatively low (i.e., below .70) coefficient alpha values have been obtained in at least three samples for three RBI scales (Partners Cannot Change, Sexual Perfectionism, and Sexes are

Different), and relatively high alpha values have been obtained in at least two samples for the Disagreement is Destructive, Mindreading is Expected, and Total scales.

Although the relatively unreliable scales (and individual items on them) may be useful in clinical assessment of individual spouses, only the latter three scales appear to yield reliable indexes of dysfunctional beliefs about relationships. Specifically, the Disagreement is Destructive, Mindreading is Expected, and Total scales were found to intercorrelate significantly and an examination of their validity indicates that each scale correlates significantly with either marital satisfaction, the behavioral variables or, in the case of Total scores, with both measures. Some evidence was also obtained to suggest that, regardless of their individual reliabilities, the three scales that correlated significantly with marital satisfaction (i.e., Disagreement is Destructive, Partners Cannot Change, and Sexes are Different) could be combined to form a Revised Total score that possessed adequate reliability and validity. It would be premature to recommend administering a shortened version of the RBI on the basis of this study, but investigators with limited time for assessment may want to consider using either the Disagreement is Destructive scale (which correlates highly with the Total score) or the 24-item Revised Total scale (which correlates more highly than the Total score with marital satisfaction). In short, the present data help resolve the discrepancies between the reliability data presented by Eidelson and Epstein (1982) and Emmelkamp et al. (1987), provide information on which of the scales can be interpreted most clearly, lend support to the validity of the scales that were found to be reliable, and suggest directions for creating shorter versions of the RBI.

Theoretical distinctions among types of cognitions: Implications for the RBI. The study of marital cognition has flourished since the time the RBI was introduced, and with this growth have come attempts to draw finer distinctions among types of cognitive content that might be important in marriage. Baucom, Epstein, Sayers, and Sher (1989), for example, have argued that standards, assumptions, selective attention, attributions, and expectancies form a fundamental set of cognitions that merit further study in marriage. In a recent discussion, Baucom and Epstein (1990) have maintained further that two RBI scales—Mindreading is Expected and Sexual Perfectionism—assess unrealistic standards that spouses hold and that the three remaining RBI scales—Disagreement is Destructive, Partners Cannot Change, and Sexes are Different—assess faulty assumptions about relationships.

The present results have three implications for this view. First, inspection of the intercorrelations among subscales (Table 2) shows that the RBI “standards” and “assumptions” subscales do indeed tend to correlate at a higher level among themselves than between themselves. Second, correlations between the subscales and marital satisfaction (Table 6) show that, without exception, the “assumptions” subscales but not the “standards” subscales covary reliably with satisfaction, thus lending some support to their distinction. Third, the coefficient alpha values (Table 5) indicate that one “assumptions” subscale and one “standards” subscale achieve acceptable levels of reliability; the present analyses therefore highlight these two subscales as valuable points of departure for developing instruments designed specifically for the assessment of standards and assump-

tions. In short, we agree that “This mixture of the two types of schemata in the RBI does not detract from its usefulness as an index of unrealistic cognitions” (Baucom & Epstein, 1990, p. 62), and we believe that the present results lend some support to the distinction between standards and assumptions and also point to how measures of these constructs could be refined in the future.

Conclusion

The results of this study indicate that the RBI merits further use in the assessment of dysfunctional cognition in marriage. The instrument appears to be useful for assessing husbands' and wives' relationship beliefs, and it provides data that link dysfunctional beliefs to observable behavior in a theoretically consistent manner. The present data do not, however, permit a complete endorsement of the RBI, as coefficient alpha was found to be low (i.e., less than .70) for three subscales. Accordingly, the Disagreement is Destructive, Mindreading is Expected, and Total scales will probably yield the most reliable data, whereas the Revised Total scale will probably yield the strongest correlations with marital satisfaction.

Further progress in our understanding of dysfunctional relationship beliefs is likely to result from investigation of whether such beliefs precede marital difficulties, from exploration of additional beliefs and their relation to other cognitive and behavioral variables, and from continued evaluation of the conceptual and psychometric properties of the instruments used to assess these concepts.

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