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Assessment of Cognitive Self-Statements During Marital Problem Solving: A Comparison of Two Methods [1]

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Abstract

Twenty maritally distressed couples (DC) and 20 nondistressed couples (NDC) were recruited and asked to undertake 10 minutes of problem-solving discussions, which were videotaped. Each individual partner's cognitive selfstatements during the interaction were assessed using two methods: videoassisted recall (VR) and thought listing (TL). Reported cognitions from each method were content-analyzed and classified into five categories: partnerreferent positive, partner-referent negative, self-referent positive, self-referent negative, and other. Proportions of reported cognitions falling into each category were analyzed in two separate two-way MANOVAs (marital distress/ nondistress x sex) for the VR and TL measures. Results of each MANO VA indicated a highly significant effect of marital distress on cognitions, and a significant effect of sex on the VR but not the TL measure. Discriminant analyses showed that the VR and TL methods both discriminated between DC and NDC groups. Post hoc univariate ANO VAs indicated that DC had significantly higher proportions of negative partner-referent cognitions, and lower proportions of positive partner-referent cognitions, than NDC while problem solving. The relative merits of each cognitive assessment method, and their potential use in increasing marital therapy effectiveness, are discussed.

Key Words: cognitive assessment; self-statements; marital distress; problem solving.

Contemporary behavioral research into the assessment and treatment of marital discord indicates that intimate relationships are complex multidetermined phenomena that require comprehensive, multidimensional assessment strategies (Margolin & Jacobson, 1981; Margolin, 1983). Several researchers have advocated the use of cognitive assessment strategies to complement existing behavioral observation methods, spouse monitoring, and self-report measures for assessing global marital satisfaction (e.g,, Schindler & Vollmer, 1984).

Interest in developing cognitive assessment tools has been prompted in part by research demonstrating that traditional behavioral marital therapy (involving behavior exchange, and communication skills and problemsolving training) results in only moderate success rates. Jacobson, Follette, Revenstorf, Baucom, Hahlweg, and Margolin (1984) found that only about half of treated couples showed a statistically reliable improvement, and only a third were maritally nondistressed after treatment. It has been argued that the characteristic cognitions of maritally distressed couples may reduce the effectiveness of behavioral marital

therapy (BMT). For example, Weiss (1984) asserts that a general negative set negates the impact of objectively verifiable behavior changes produced by BMT.

Increased emphasis on cognitive factors also has been prompted by research and clinical observations of potentially important differences between the cognitive constructions of maritally distressed and nondistressed couples. Distressed couples have been found to have maladaptive general beliefs about relationships-e.g., change by their partner is not possible, any disagreement is destructive (Eidelson & Epstein, 1982); to have negative biases relative to observers in their perceptions of their spouses' communications (Floyd & Markman, 1983); and to overlook positive aspects of their spouses' day-to-day behavior (Jacobson & Moore, 1981). Distressed couples also attribute their partners' negative behavior to internal factors such as character flaws, whereas nondistressed couples tend to attributte their partners' negative behavior to situational factors (Jacobson, McDonald, Follette, & Berley, 1985). Earlier research by Doherty (1982) and Jacobson and Margolin (1979) indicated that spouses with attributional patterns similar to those above were likely to elicit angry defensive behavior on the part of their partner, which subsequently might lead to ineffective problem solving. Camper, Jacobson, Holzworth-Munroe, and Schnaling (1988) recently found that negative partner behavior was more likely to prompt attributive thoughts than positive partner behaviors.

The research cited above has employed a variety of instruments to assess cognitive variables. One procedure is the use of self-report measures of general cognitive sets about a marital relationship, such as the Relationship Beliefs Inventory (Eidelson & Epstein, 1982), the Broderick Commitment Scale (Broderick & O'Leary, 1986), and the Marital Attitudes Survey (Epstein, Pretzer, & Fleming, 1987). A second method has been to present couples with hypothetical interactive situations. Couples then are asked to indicate their views on the causes of their partners' actions (e.g., Fincham & O'Leary, 1985).

While the above methods have been useful in clarifying general cognitive sets, expectations, and attributions that differentiate between distressed and nondistressed couples, it is unclear how specific relationship beliefs or attributional biases influence the ongoing behavioral interaction of couples in the natural environment. Concern for developing context-specific methods of assessing couples' cognitive constructions has led to the use of actual interactions between couples as the stimulus for reporting of cognitions (e.g., Camper et al., 1988; Holtzworth-Munroe & Jacobson, 1985, in press). This strategy has the potential to enable targets for cognitive intervention to be selected on demonstrated covariance with couples' maladaptive interactive behaviors. However, there are a variety of widely used context-specific cognitive assessment methods, which produce varying results (Cacioppo & Petty, 1981; Genest & Turk, 1981; Schwartz & Garmoni, 1986). There is no evidence to date on which methods provide the most cost-effective, reliable, and valid indices of couples' cognitions.

Methods of reporting cognitions frequently are classified into two categories: endorsement strategies (e.g., self-statement checklists) and generative strategies. The latter option requires subjects to report their own cognitive constructions of an interaction or experience, the former require endorsement of one or more of a set of experimenter-determined alternatives. Given our current dearth of knowledge on context-specific cognitions during marital interaction, generative strategies seem most appropriate.

Thought listing (TL) and the video reconstruction method (VR) are two context-specific generative assessment methods. Each requires subjects to retrospectively report self-statements they had during a prior interaction. In TL subjects are typically required to write down thoughts that occurred to them during a particular interaction (e.g., Camper et al.,

1988), and these written statements are then content-analyzed by trained judges (Kendall & Hollon, 1981). This method has been extensively used in the assertion training and social anxiety literature, and more recently in the marital literature as well. It has been shown to produce high interrater reliability and have satisfactory discriminant validity (Cacioppo & Petty, 1981). In the VR method subjects watch a videotaped interaction involving themselves, and, at specified times, the video is paused and subjects verbalize into a tape recorder what they were thinking at the time (Meichenbaum, 1977; Schindler & Vollmer, 1984).

The present study aims to fill a gap in cognitive assessment of marital interaction by comparing TL and VR as methods of assessing cognitive self statements during marital problem solving. The capacity of each measure to discriminate between distressed and nondistressed couples was assessed. In addition, the study assessed the types of self-statements made by couples during ongoing interactions. Specific hypotheses were as follows: (1) Distressed couples would engage in higher levels of partner-referent negative self-statements during problem solving compared with nondistressed couples. This hypothesis was based on the assumption that distressed couples during problem solving attend selectively to their partners' negative communications, and there is a greater associated negative affect generated. (2) Distressed couples would engage in lower levels of positive partner-referent self-statements. (3) Distressed couples would engage in higher rates of negative self-referent, and lower rates of positive self-referent, self-statements than nondistressed couples. This prediction was based on the assumption that maritally distressed individuals would selectively attend to, and think about, negative aspects of their own affective and behavioral responses to their partners. (4) Both TL and VR measures would discriminate between distressed and nondistressed groups and would not differ in terms of interrater reliability. (5) Scores on both measures would be moderately to highly intercorrelated.

METHOD

Subjects

Twenty distressed and 20 nondistressed couples were recruited following announcements in the local media about the project. The first 20 couples to reach selection criteria for each group were included in the sample. Couples in the distressed group were included providing (1) at least one of the partners reported that the relationship was distressed, or unsatisfactory, (2) both partners indicated a desire to enter marital therapy. Inclusion criteria for the nondistressed group were (1) a verbal report by both partners that the marriage was at least satisfactory, and (2) that neither partner was in, or wanting to enter, marital therapy.

All subjects in both groups were screened for major psychopathology via a clinical interview using the DSM-III (American Psychiatric Association, 1980) diagnostic criteria. Diagnosis of one or both partners on any of the following led to exclusion from the sample: major depression, functional or organic psychosis, obsessive compulsive disorder, major substance abuse, or severe anxiety disorder. One distressed couple separated and dropped out of the study before completing the assessment data, leaving a final sample of 19 distressed couples.

The demographic characteristics of couples were established at interview. Socioeconomic status was rated using Congalton and Daniel's (1976) system ranging from 7-"manually unskilled" to 1 -"high-level professional." A one-way multivariate analysis of variance

(MANOVA: *Statistical Package for the Social Sciences-X,* 1986) across maritally distressed and nondistressed groups on the variables of age of husband and wife, years of marriage, numbers of children, and socioeconomic status was conducted. There was no significant difference between the groups on these variables. The combined sample of distressed and nondistressed couples had been married for a mean of 11.5 years and had a mean of 2.0 children. Husband's mean age was 38 years and wife's was 35 years. The mean socioeconomic status was 3.4, indicating that the sample was predominantly from the lowermiddle socioeconomic groups.

The Locke-Wallace Marital Adjustment Test (Locke & Wallace, 1959) was administered as a check on the marital satisfaction status of each group. Males in the distressed couples (DC) had a mean score of 63.9 (SD = 17.1), and males in the nondistressed couples (NDC) of 121.8 (SD = 20.3). An analysis of variance indicated this was a highly significant difference ($F = 41.92$, $df = 1, 35$, $p < .001$). Females in the DC had a mean of 76.0 (SD = 17.2) and in the NDC of 120 (SD = 20.2). Again, this was a highly significant difference ($F = 36.80$, $df = 1, 35$, $p < .001$).

Measures

Each couple was instructed to engage in two 5-minute problem-solving interactions. Prior to this, each partner was asked to identify and write down three current problems or issues in the relationship that he or she wished to discuss with the partner. The partners then exchanged lists and selected one of the three topics nominated for discussion by their partner. Thus, two topics were selected, one originally nominated by each partner. Each of these topics was discussed for 5 minutes, and each interaction was videotaped.

On completion of each 5-minute problem-solving discussion, two different measures of cognitions were taken: a video-mediated recall method (VR) measure and a thought-listing (TL) measure. The VR involved having subjects individually watch a replay of the interaction just completed. They were alone in the viewing room. The videotape was paused every 20 seconds by an experimenter in another room, and subjects were instructed to verbalize into an audiocassette recorder their thoughts at that point in the interaction. The pause lasted 20 seconds, and then the next 20 seconds of videotaped interaction was played. The timing and duration of the pauses was based on pilot work suggesting that 20 seconds was optimal. More frequent pauses produced redundancy in reported cognitions.

The second cognitive assessment method used was a thought-listing (TL) procedure, as described by Cacioppo and Petty (1981). Subjects individually were asked to write down any thoughts they were aware of during the interaction on a provided form. The form consisted of 20 boxes, and subjects were instructed to write each thought in a separate box. Subjects were left alone in a room for 20 minutes to complete the form.

The cognitions reported by subjects using the VR and TL methods were content-analyzed. Each 20-second pause in the VR and each box in the TL was a coding unit. Each coding unit was classified into one of five categories: partner-referent positive, partner-referent negative, self-referent positive, selfreferent negative, or other. A partner-referent cognition was defined as any cognition making reference to the spouse or marital relationship (e.g., "He always says that sort of negative thing." "Why should she always get her own way?"). Self-referent cognitions referred to any act, thought, or feeling about the self. Other cognitions were those not related to the spouse, relationship, or self (e.g., "It's dark in here"). A priority coding system was used such that when a cognition met the criteria of more than one category, partnerreferent cognitions were given top priority, self-referent was next, and other had the lowest priority. A negative cognition was defined as any

statement containing criticism, hostility, or disapproval. A positive cognition was defined as the absence of negativity. Originally it was intended to have a tripartite classification of negative, neutral, and positive. However, in pilot work, reliable discrimination between neutral and positive cognitions could not be achieved. Given that the presence or absence of negative self-statements generally is viewed as the critical aspect of cognitive behavior influencing clinical problems (Hollon & Bemis, 1981; Kendall & Hollon, 1981), the dichotomy of negative versus neutral/positive was deemed appropriate.

Two raters naive to the experimental hypotheses and marital distress/ nondistress of the couples were trained for approximately 10 hours in the use of the coding system. Training consisted of listening to audiotapes, or reading thought-listing forms, making classifications, and then discussing classifications among raters. One rater then rated all VR and TL data, and a second rater a randomly selected sample of one-third of the VR and TL data.

The number of cognitions reported by individuals on both the VR and TL measures varied from subject to subject. The dependent measures used were the proportion of all reported cognitions falling into each of the classification categories.

Procedure

All couples attended assessment sessions at the Behavior Research and Therapy Centre (BRTC), an outpatient research and training clinic run jointly by the Departments of Psychiatry and Psychology at the University of Queensland. In the first session both partners were briefed on the general purpose of the study and were asked to sign an informed consent form. A structured clinical interview was conducted to establish biographical details and screen participants for major psychopathology. The Locke-Wallace Marital Adjustment test was completed by each partner in this session. The problem-solving discussions were held in a subsequent session. In a final session subjects were debriefed. This involved a discussion providing couples with descriptive information about their observed pattern of communication, and outlining the objectives of the study in detail. Maritally distressed couples were given the option of entering behavioral marital therapy in the BRTC.

Prior to the commencement of each of the problem-solving sessions, subjects were instructed to discuss the predetermined topic for 5 minutes. The experimenter then left the room, turned on the video equipment, and signaled to the couple, by knocking on the door, to begin the discussion. A tone was dubbed onto the tape every 20 seconds during recording. At the end of 5 minutes the tape was stopped and the experimenter reentered the room and described the cognitive assessment tasks. It was explained that each partner would undergo each of the two assessments. Then one spouse was taken to another room. The instructions were the standard ones used by Cacioppo and Petty (1981) and were read out loud. The subject was told that the experimenter would return in 20 minutes. The experimenter then returned to the other spouse and described the video-mediated recall assessment procedure. The subjects were instructed to imagine having the talk with theft partners again, saying, doing, and thinking exactly what they were just a few minutes ago. At the points when the videotape was paused subjects were told to say out loud what they were saying to themselves at that point in the discussion. The comments were recorded on a tape recorder. The experimenter then left the room, and the videotape was then turned on and paused at the sound of each tone. While the VR assessment was conducted for the second spouse, the first spouse completed the TL procedure. After the assessment, the second problem-solving session was conducted and the assessment procedure repeated. The order of presentation of the two problems for discussion (one nominated by male, one

nominated by female partner) and the sex of the partner first doing the VR assessment procedure were counterbalanced for order effects.

RESULTS

Interrater reliabilities of coding of cognitions were high, with an overall Kappa = 0.75 for the TL data and Kappa = 0.86 for the VR data. To evaluate the power of each assessment method to discriminate hypothesized differences in cognitions, two multivariate analyses of variance (MANOVAs) were conducted. Each MANOVA was a two-way (Marital distress/nondistress × Sex) analysis, with sex being treated as a within-couples factor *(Statistical Package for the Social Sciences-X,* 1986). Owing to recurrent equipment breakdowns when the distressed couples were being assessed, complete data on the TL measure were available for 16 distressed couples and the VR measures were available for only 13 distressed couples. Complete data were available for all 20 nondistressed couples on both measures.

The MANOVA on the TL data revealed a significant main effect for marital distress/nondistress status ($F = 14.93$, $df = 1, 35$, $p < .001$), a trend toward a main effect of sex that failed to reach an acceptable level of significance ($F = 2.32$, $df = 1, 35$, $p = .08$), and no significant interaction between marital status and sex. The results for the VR data were very similar. The MANOVA showed a significant main effect for marital status ($F = 7.88$, $df = 1, 32$, $p < .001$), a significant main effect for sex ($F = 3.79$, $df = 1, 32$, $p < .05$), but no significant interaction effect. Thus, both measurement procedures reveal clear differences between the distressed and nondistressed groups across these composite sets of cognitive measures, with some equivocal evidence of sex differences.

The mean percentage of cognitions reported falling into each of the four classifications (partner positive, partner negative, self-positive, and selfnegative) are presented in Figure 1. Data are presented for male and female maritally distressed and nondistressed subjects on both the TL and VR measures. The similarity in the patterns for each sex on each measure is evident in this figure.

Post hoc univariate analyses of variance (ANOVA) were conducted to establish on which particular variables the distressed and nondistressed couples differed significantly. On the thought-listing measures there Were significantly fewer partner-referent positive cognitions ($F = 18.67$, $df = 1, 34$, $p < .001$, more partner-referent negativ e cognitions ($F = 44.41$, $df = 1, 34$, $p < .001$), and fewer self-referent positive cognitions ($F = 13.78$, $df = 1, 34$, $p < .001$) reported by distressed than by nondistressed couples. No significant difference was observed on rates of report of self-referent negative cognitions. On the video-mediated recall measures, distressed couples reported significantly fewer partner-referent positive cognitions ($F = 21.72$, $df = 1, 31$, $p < .001$), more partner-referent negative cognitions ($F = 20.84$, $df = 1, 31$, $p < .001$), and fewer self-referent positive cognitions ($F = 15.31$, df -- $1, 31$, $p < .001$). There was no significant difference between distressed and nondistressed couples on reported self-referent negative cognitions.

The MANOVA reported above showed a significant main effect for sex on the VR measure, and a nonsignificant trend on the TL measure. Post hoc univariate ANOVAS were used to assess on which variables significant sex differences were evident on the VR measure. Males reported significantly more partner-positive ($/7 = 7.64$, $df = 1, 31$, $p < .01$) and fewer partner

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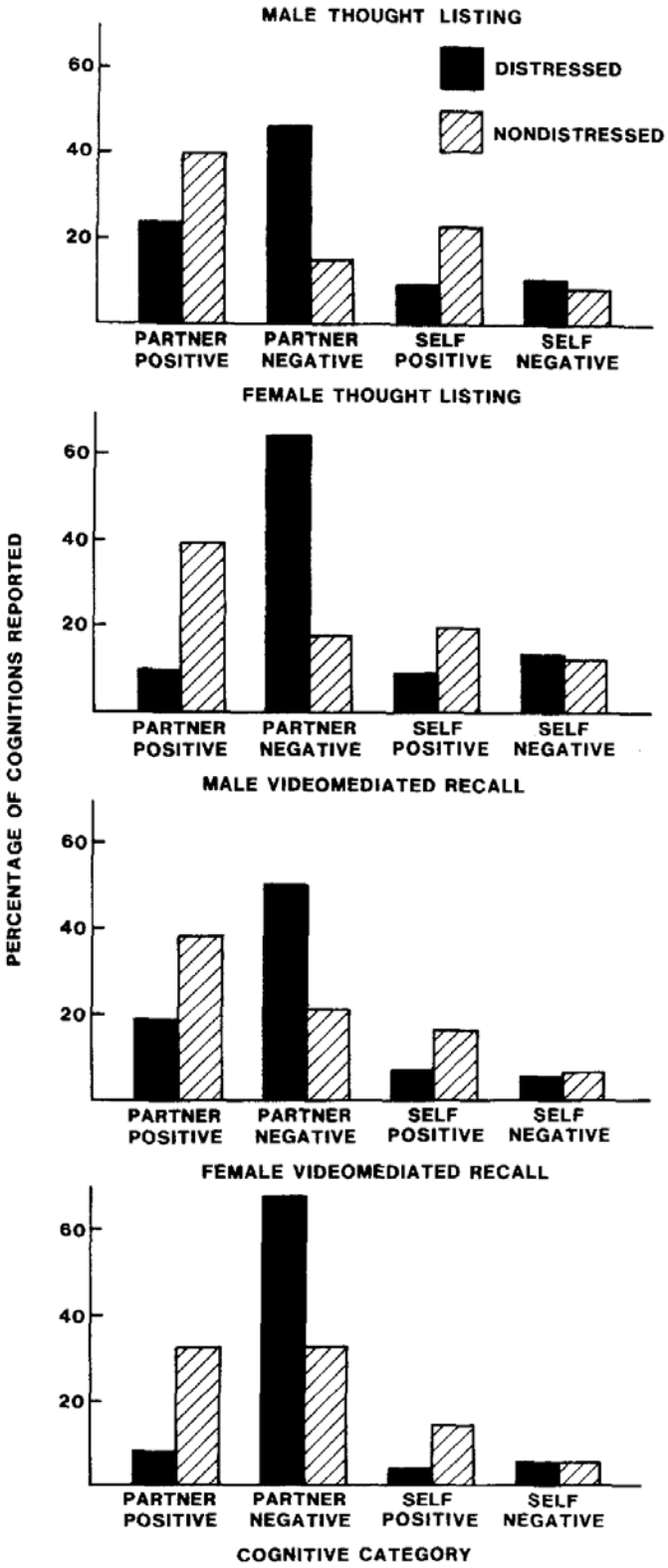

Fig. 1. Proportion of reported cognitions in each category for male and female distressed and nondistressed subjects on the video-mediated recall and thought-listing measures.

negative cognitions (F = 10.71, *df* = 1, 31, p < .01) than females. No sex differences were evident On self-referent positive or negative cognitions. The patterns in sex differences on the TL measure were similar. However, given the lack of overall significance of the sex effect in the MANOVA on this measure, these results were not analyzed further.

To assess the discrimination of each assessment method between the maritally distressed and nondistressed groups, a series of discriminant analyses were conducted *(Statistical Package for the Social Sciences-X,* 1986). The discriminant function yielded for female cognitions on the VR method significantly discriminated between the groups (x 2 = 20.60, *df = 4, p* < .0005), as did the function obtained on the male cognitions (X 2 = 14.53, *df* = 4, p < .01). Significant discrimination between groups also was obtained on a function yielded from the measures of female cognition derived from the TL method (X 2 = 35.75, *df* = 4, p < .0001), and from the male cognitions from the TL method (X 2 = 16.48, *df* = 4, p < .005). Thus, each measure discriminated between the cognitions of each group for each sex.

To clarify the relative power of each assessment method to discriminate between the distressed and nondistressed groups, a classification analysis was conducted on the basis of the discriminant functions yielded by an input of measures of both partners' cognitions for first the VR and then the TL procedure. In the classification analysis, each couple's marital satisfaction classification is predicted on the basis of the discriminant function, and predicted and actual membership are compared *(Statistical Package for the Social Sciences-X,* 1986). The discriminant function based on the VR measure correctly classified 84.9% of couples. Eighteen of the 20 nondistressed couples and 10 out of 13 distressed couples for which data were available on this assessment method were classified correctly. The function based on the TL measure correctly classified 91.7% of cases, with 19 out of 20 nondistressed and 14 out of 16 distressed couples classified correctly. Thus, both methods provide clear and approximately equal discrimination between the groups.

Table I. Correlations Between Video-Mediated Recall and Thought-Listing Measures on Proportions of Different Categories of Marital Problem-Solving Cognitions

Cognitive category	Male	Female
Partner-referent positive	.65 a	.63 a
Partner-referent negative	.62 a	.63 a
Self-referent positive	.07	.37 b
Self-referent negative	.28	.35 b

[a]p < .001.
[b]p < .05; p's refer to the null hypothesis that r=O.

As an index of the agreement between the measures, correlations between the proportions of cognitions observed for each subject in each category on the two measures were calculated. These data are presented in Table I. There are moderate- to high-magnitude correlations between the measures on the partner-referent cognitions for both sexes, all of which are statistically significantly different from zero. There are low, but statistically significant, correlations on female-reported self-referent cognitions, but no association on the male self-referent cognitions. This provides clear evidence of the

convergent validity of the two measures as indices of partner-referent cognitions. However, it is evident that there is much lower agreement on selfreferent cognitions.

DISCUSSION

This study provides clear support for the first two hypotheses that distressed couples engage in higher levels of partner-referent negative selfstatements and lower lovels of partner-referent positive self-statements during problem solving than do nondistressed couples. This finding is consistent with previous research showing that distressed couples often have negative biases, or distorted views of their partners' actions and behaviors (Berley & Jacobson, 1984; Jacobson et al., 1985). It extends previous findings by comparing two methods of cognitive assessment, and it replicates the finding that distressed couples' self-talk about each other during specific attempts to resolve relationship disagreements is largely negative (Camper et al., 1988; Holzworth-Munroe & Jacobson, in press). Indeed, it is striking that over 50% of all cognitions reported by distressed couples were negative partner-referent self-statements. In addition, as predicted, distressed couples engaged in fewer positive self-referent self-statements on both measures. However, there was no significant difference between the groups on negative self-referent cognitions on either the VR or the TL method.

The VR and TL measures produced very similar profiles of results in relation to all four categories of cognition (partner-referent negative, partnerreferent positive, self-referent negative, and self-referent positive), providing evidence for the convergent validity of the measures. Furthermore, the correlation analysis showed that scores for both males and females using the TL and VR measures were highly correlated for both partner-referent positive and partner-referent negative cognitions. However, there was little association for the self-referent cognitions. This finding suggests that the measures overlap in the cognitions they elicit but also differ on some aspects of couples' cognitions. This provides partial support for hypothesis five.

The above findings raise several important issues regarding clinical assessment of distressed relationships. The TL is clearly the more cost-efficient of the measures. The TL can be administered in 10 to 15 minutes, whereas the VR method takes 45 minutes per couple. The TL method takes only 5 minutes per subject for the record forms to be content-analyzed, whereas the VR tapes take between 20 and 30 minutes. TL involves essentially no equipment. Hence, assessment costs, and the opportunity for equipment breakdown or failure, are minimized. A number of technical difficulties in the collection of the VR data in the current study led to some couples' being dropped from the analysis. On the other hand, the VR method yields data that can more easily be correlated with accompanying behavioral events that occurred during the interaction.

It is interesting that the TL and VR methods elicit similar reports of partner-referent cognitions but differing reports of self-referent cognitions. One possible explanation of this effect is in terms of the specific stimuli to which subjects are responding. In the VR method the videotape shows the subject and partner interacting. The partner on the tape presumably looks very similar to how the subject would see his or her spouse during interaction. However, subjects see themselves quite differently on the videotape than their subjective view of themselves during interaction. Schwartz and Garmoni (1986) describe this as the subjects being confronted with their *publicly observable behavior* rather than their *experienced behavior.* This happens because the camera is positioned to record the subject's behavior from an observer's viewpoint rather than the subject's viewpoint. Thus, the VR method provides a memory cue for partner-referent thoughts very similar to the

interaction but does not recreate cues about the subject as it was experienced by the subject.

Schwartz and Garmoni (1986) suggest that seeing one's own publicly observable behavior heightens self-awareness in a manner that leads to distortions in the production and reconstruction of relevant cognitions. They recommend that cameras in VR procedures should be positioned to reproduce, as far as practicable, the subject's point of view during interaction. In the case of marital interaction, this would necessitate two cameras to produce a subjective view for each partner, and would add to the difficulty of administration of the VR method. On the other hand, in the TL method, subjects are reporting cognitions based simply upon their subjective recall of the interaction, which seems the most critical stimulus to provide.

In sum, the TL procedure is a relatively quick, cost-efficient, and reliable measure of couples' self-talk regarding important relationship events. However, the VR procedure yields data more closely linked to accompanying behavioral events and may be particularly useful as a research tool. In future use of VR there is a need to position cameras so as to produce representations of subjects' experiences during interaction.

The assessment procedures used in this study highlight various methodological issues relevant to cognitive assessment in general. First, the two cognitive assessment tasks were carried out one after the other. This was necessary in order to determine if similar data were generated by each method, and counterbalancing was done for order effects. The varieties of sequences and the limited subject numbers gave the design insufficient power to analyze statistically for possible order effects. Clearly, the two assessment procedures cannot be assumed to be independent. Doing the VR first may have influenced TL results and vice versa. This order effect would not be problematic in most research and clinical applications (since it is unlikely that two similar assessment methods would both be used). However, it is possible that cognitive assessment results will be affected by experiences immediately prior to assessment.

A second methodological issue is that subjects in the current study, as in most studies, reported their cognitions retrospectively. In the case of the VR method, this was done as a videotape of the interaction was played. However, there still remains the question of whether subjects actually had the cognitions during interaction that they subsequently reported. The extent to which individuals are willing, and able, to report accurately on mental events has been discussed widely elsewhere (Kendall & Hollon, 1981; Nisbett & Wilson, 1977). Ultimately the value of self-reported cognitions, such as those assessed in the current study, is determined by the extent to which such information predicts, and guides modification of, observable behavior.

A third methodological issue relates to the best method of classifying reported cognitions. The positive/negative self-statement dictionary used in the current study has been widely used in the cognitive-behavioral literature (Hollon & Bemis, 1981; Kendall, 1983). It has been argued that the presence or absence of negative self-statements is the best-demonstrated influence on most clinically significant behaviors (Hollon & Bemis, 1981), though the need for more fine-grained analysis of the types of negative self-statements influencing behavior has been recognized. In the marital area several researchers have focused on attributions, arguing that negative attributions may mediate negative responses to the partner (e.g., Camper et al., 1988; Doherty, 1982). However, Fincham and O'Leary (1985) reported that affect better predicted self-reports of responses than did attributions. More fine-grained content analysis of reported cognitions is needed to assess what sort of

cognitions covary most closely with both negative affect and maladaptive interactional behavior.

While an association between self-statements and marital distress has been established in this study, the causal impact of cognitive variables on marital interaction has not been demonstrated. Several future research directions may help to clarify causal relationships. Data from the VR method potentially can be input into sequential analysis. This could answer questions such as: "Is reciprocation of aversive communication more likely in the presence of negative cognitions?" While this could not definitely support causality, such fine-grained analysis could disprove causality if no association between cognitions and subsequent behavior were found. The authors are currently undertaking this research.

A second research direction is to attempt to manipulate cognitions experimentally, such as in cognitively orientated marital therapy, and to evaluate the effect on marital interaction. To date, only one study has assessed the impact of modifying cognitions on marital interaction. Baucom and Lester (1986) reported that the addition of cognitive behavioral therapy (CBT), focusing on modifying attributions during marital problem solving and challenging irrational relationship beliefs, did not enhance the efficacy of standard BMT. There are many potential explanations for this. One possibility is that the focus on attributions and relationship beliefs was inappropriate. While there is quite a volume of research showing that certain attributional styles and relationship beliefs covary with marital distress (e.g., Eidelson & Epstein, 1982; Jacobson et al., 1985), a causal influence of these variables on marital interaction has not been demonstrated. A second possibility is that the CBT did not produce the necessary cognitive changes. While cognitive change was assessed, the measures used were of general attributional style and relationship beliefs rather than cognition during marital interaction. On the general cognitive measures, CBT and BMT together were not superior to BMT alone. Baucom and Lester (1986) noted that their CBT procedures were new and may not have been effective. Future outcome research needs to include assessment of the effects of treatment on context specific cognitions.

One potential application of the assessment of context-specific cognitions is to provide the basis for stress inoculation training for couples. Gottman and Levenson (1986) have shown that distressed couples show more negative affective response during marital problem solving than do nondistressed couples. It is possible that self-statements mediate affective responses, such as anger, in marital interaction and that they in turn influence subsequent responses. In recent work, the current authors have identified settings that increase the likelihood of negative affect and marital arguments (Sanders & Halford, in press). Schindler and Vollmer (1984) suggest that stress inoculation training, incorporating self-instruction to prepare partners to deal with such high-risk settings, may reduce negative affect and communication breakdown.

Further research usefully could focus on the sequential relationship of cognition and behavior. There is also a need to identify cognitions that occur in high-risk settings. Then, more definitive research can proceed on the utility of incorporating cognitive interventions in behavioral marital therapy.

REFERENCES

American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorder*s (3rd ed.). Washington DC: Author.*

Baucom, D. H., & Lester, G. W. (1986). The usefulness of cognitive restructuring as an adjunct to behavioral marital therapy. Behavior Therapy, 17, 385-403.

Berley, R. A., & Jacobson, N. S. (1984). Causal attributions in intimate relationships: Toward a model of cognitive behavioral marital therapy. In P. Kendall (Ed.), Advances in *cognitive-behavioral research and therapy (Vol. 3, pp. 1-90). New York: Academic Press.*

Broderick, J. E., & O'Leary, K. D. (1986). Contributions of affect, attritudes, and behavior to marital satisfaction. Journal of Consulting and Clinical Psychology, 54, 514-517.

Cacioppo, J. R., & Petty, R. E. (1981). Social psychological procedures for cognitive response assessments: The thought listing technique. In T. V. Merluzzi, C. R. Glass, & M. Genest (Eds.), Cognitive assessment (pp. 388-438). New York: Guilford Press.

Camper, D. M., Jacobson, N. S., Holzworth-Munroe, A., & Schnaling, H. B. (1988). Causal attributions for interactional behaviors in married couples. Cognitive Therapy and *Research, 12, 195-210.*

Congalton, A. A., & Daniel, A. E. (1976). The individual in the making. Sydney: Wiley. Doherty, W. J. (1982). Attributional style and negative problem solving in marriage. Family *Relations, 31, 201-205.*

Eidelson, R. J., & Epstein, N. (1982). Cognition and relationship maladjustment: Development of a measure of dysfunctional relationship beliefs. Journal of Consulting and Clinical *Psychology, 50, 715-720.*

Epstein, N., Pretzer, J. L., & Fleming, B. (1987). The role of cognitive appraisal in self-reports of marital communication. Behavior Therapy, 18, 51-69.

Fincham, F., & O'Leary, K. D. (1985). Causal inferences for spouse behavior in maritally distressed and nondistressed couples. Journal of Social and Clinical Psychology, 1, 42-57.

Floyd, F. J., & Markman, M. R. (1983). Observational biases in spouse observation: Toward a cognitive/behavioral model of marriage. Journal of Consulting and Clinical Psychol- *ogy, 51, 450-457.*

Genest, G., & Turk, D. C. (1981). Think aloud approaches to cognitive assessment. In T. V. Merluzzi, C. R. Glass, & M. Genest (Eds.), Cognitive assessment (pp. 233-269). New York: Guilford Press.

Gottmann, J. M., & Levenson, R. w. (1986). Assessing the role of emotion in marriage. Be-*havioral Assessment, 8, 31-48.*

Hollon, S. D., & Bemis, K. M. (1981). Self report and the assessment of cognitive functions. In M. Hersen & A. S. Bellack (Eds.), Behavioral assessment: A practical handbook (2nd ed., pp. 125-174). New York: Pergamon Press.

Holzworth-Munroe, A., & Jacobson, N. S. (1985). Causal attributions of married couples: When do they search for causes? What do they conclude when they do? Journal of Personality *and Social Psychology, 48, 1398-1412.*

Holzworth-Munroe, A., & Jacobson, N. S. (in press). Toward a methodology for coding spon- taneous causal attributions: Preliminary results with married couples. Journal of Social *and Clinical Psychology.*

Jacobson, N. S., McDonald, D. W., Follette, W. C., & Berley, R. A. (1985). Attributional process- G. (1984). Variability in outcome and clinical significance of behavioral marital therapy: A re-analysis of outcome data. Journal of Consulting and Clinical Psychology, 52, 497-504.

Jacobson, N. S., & Margolin, G. (1979). Marital therapy: Strategies based on social learning *and behavior exchange principles. New York: Brunner/Mazel.*

Jacobson, N. S., McDonald, D. W., Follete, W. C., & Berley, R. A. (1985). Attributional process- es in distressed and nondistressed married couples. Cognitive Therapy and Research, 9, 35-50.

Jacobson, N. S., & Moore, D. (1981). Spouses as observers of events in their relationship. Journal *of Consulting and Clinical Psychology, 49, 269-277.*

Kendall, P. C. (1983). Methodology and cognitive-behavioral assessment. Behavioral Psychother- *apy, 11, 285-301.*

Kendall, P. C., & Hollon, S. D. (1981). Assessing self-referent speech: Methods in the meas- urement of self-statements. In P. C. Kendall & S. D. Hollon (Eds.), Assessment strate- *gies for cognitive-behavioral interventions (pp. 85-118). New York: Academic Press.*

Locke, H. J., & Wallace, K. M. (1959). Short-term marital adjustment and prediction tests: Their reliability and validity. Journal of Marriage and Family Living, 21, 251-255.

Margolin, G. (1983). An interactional model for the behavioral assessment of marital relation- ships. Behavioral Assessment, 5, 103-127.

Margolin, G., & Jacobson, N. S. (1981). Assessment of marital dysfunction. In M. Hersen & A. S. Bellack (Eds.), Behavioral assessment: A practical handbook (2nd ed., pp. 389-426). New York: Pergamon Press.

Meichenbaum, D. (1977). Cognitive behavior modification: An integrative approach. New York: Plenum Press.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. Psychological Review, 84, 231-259.

Sanders, M. R., & Halford, W. K. (in press). Situational variables and marital interaction. *Behavior Change.*

Schindler, L., & Volmer, M. (1984). Cognitive perspectives in behavioral marital therapy: Some proposals for bridging theory, research and practice. In K. Hahlweg & N. S. Jacobson (Eds.), Marital interaction: Analysis and modification (pp. 309-324). New York: Guil- ford Press.

Schwartz, R. M., & Garmoni, G. L. (1986). Cognitive assessment: A multibehavior-multimethod- multiperspective method. Journal of Psychopathology and Behavioral Assessment, 8, 185-195.

Statistical package for the social sciences-X (2nd ed.). (1986). New York: McGraw-Hill.

Weiss, R. L. (1984). Cognitive and behavioral measures of marital interaction. In K. Hahlweg & N. S. Jacobson (Eds.), Marital interaction: Analysis and modification (pp. 337-355). New York: Guilford Press.