

Cognitive Processing Therapy for Sexual Assault Victims

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Cognitive processing therapy (CPT) was developed to treat the symptoms of posttraumatic stress disorder (PTSD) in rape victims. CPT is based on an information processing theory of PTSD and includes education, exposure, and cognitive components. Nineteen sexual assault survivors received CPT, which consists of 12 weekly sessions in a group format. They were assessed at pretreatment, posttreatment, and 3- and 6-month follow-up. CPT subjects were compared with a 20-subject comparison sample, drawn from the same pool who waited for group therapy for at least 12 weeks. CPT subjects improved significantly from pre- to posttreatment on both PTSD and depression measures and maintained their improvement for 6 months. The comparison sample did not change from the pre- to the posttreatment assessment sessions.

Although there have been some reports of effective treatment of rape victims reported in the literature (see Resick & Schnicke, 1990, for a review), there has been little treatment reported thus far that has been specifically tailored to treat the symptoms of posttraumatic stress disorder (PTSD), the complex of symptoms observed most frequently in rape victims (Kilpatrick, Saunders, Veronen, Best, & Von, 1987). Over the past few years, information processing theories of PTSD have been proposed that have important implications for the treatment of rape victims. The purpose of this article is to describe one such theory and to present the results of a therapy emanating from this theory that was developed to treat PTSD in rape victims.

Information processing theory speaks to the process by which information is encoded, stored in memory, and recalled. The Foa, Steketee, and Olatosov-Rothbaum (1989) information processing theory of PTSD, which is based on Lang's (1977) model, proposes that information is stored in fear networks that consist of stimuli, responses, and the meanings of the stimulus and response elements. The network is viewed as a program to stimulate avoidance behavior.

Beck and Emery (1985) described fear reactions as emanating from an appraisal of threat. Fear appraisal involves the activation of a preexisting (trauma-induced) cognitive schema that leads the person to attend to evidence that is consistent with the schema and to ignore evidence that is inconsistent. As a result, detection of even ambiguous information about the presence of a threat serves to focus the person's attention on obtaining further evidence regarding threat and triggers typical fear responses of escape and avoidance.

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Chemtob, Roitblat, Hamada, Carlson, and Twentyman (1988) developed a very similar theory, known as hierarchical cognitive action theory, that evolved from Foa's, Lang's, and Beck and Emery's theories. Chemtob et al. proposed that schemata are arranged in a hierarchical fashion of interconnecting nodes. Activation of a threat-arousal node potentiates threat expectancy, the belief that a threatening event *will* occur. Chemtob et al. also proposed that in PTSD the threat schema is always at least weakly potentiated. Litz and Keane (1989), reviewing the research on information processing in anxiety disorders, found that anxious subjects have an attentional bias toward threat cues. They suggested that this readiness to attend to threat cues could account for the reexperiencing phenomenon or "cued memory reactivation" of PTSD.

Hollon and Garber (1988) described causal attributions, attributes or ascriptions, and expectations as the outcome or product of information processing. The actual cognitive content (including schematic beliefs, causal attributions, and expectations) has not received much attention thus far from most of the PTSD theorists. Wong and Weiner (1981) demonstrated that attributional searches are spontaneously triggered rather than simply initiated when an individual is asked to do so. These attributional searches are automatic and most frequent when an event is negative and unexpected. The negative and unpredictable nature of victimization indicates the need to investigate the causal attributions of victims.

Mikulincer and Solomon (1988) examined attributional style and PTSD in combat veterans. They found that psychopathology was significantly correlated with attribution scores. Falsetti and Resick (1991) found that crime victims held more unstable attributions for positive hypothetical events, more internal attributions for negative hypothetical events, and more stable attributions for their actual event than nonvictims.

Other studies illustrate the apparent importance of cognitive appraisal and subsequent reactions. Schepple and Bart (1983) found that women who were raped in situations that they had believed to be safe were more likely to experience more severe reactions than women who suspected their situations were dangerous. Frank and Stewart (1984) reported similar findings.

Furthermore, Perloff (1983) found that women who had previously believed themselves to be uniquely invulnerable to crime had more difficulty recovering than women who believed they were as vulnerable as others (universal vulnerability). These studies indicate that when a rape experience conflicts with prior beliefs, the victim is less able to reconcile this event with prior beliefs and has greater trouble recovering.

Although information processing theories fit the information currently available on PTSD as an anxiety disorder, it appears that PTSD consists of much more than fearful memories. Intrusive recollections and avoidance might be activated by other strong affects and beliefs as well. For instance, crime victims often report experiencing anger, disgust, humiliation, and guilt. They also report conflicts between prior schemata and the current event ("Rape doesn't happen to nice women"). In fact, Veronen, Kilpatrick, and Resick (1979) found that rape victims reported experiencing a range of reactions besides fear during, immediately after, and hours after the crime. Pitman et al. (1990) found the same range of emotions among combat veterans with PTSD when they listened to individualized traumatic scripts. In fact, PTSD veterans were no more likely to report feeling fear than other emotions.

In two studies, Resick and colleagues (Resick, Churchill, & Falsetti, 1990; Resick & Gerrol, 1988) found a relationship between a range of emotions and PTSD symptoms. A study of 256 rape and robbery victims (Resick & Gerrol, 1988) examined the symptoms of PTSD at 1 month postcrime, as measured by the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979) and subjects' reports of their emotional and cognitive states during the event. Detachment, anger, guilt, confusion, humiliation, betrayal, and anxiety were all correlated with PTSD symptoms.

A recent study replicated these findings (Resick et al., 1990). Seventeen rape victims were given the same items to rate and were given the Impact of Event Scale (Horowitz et al., 1979) and the PTSD Symptom Scale (Foa, Riggs, Dancu, & Rothbaum, in press) approximately 1½ years after the crime. In a stepwise regression of within-crime reactions to predict PTSD symptoms, it was found that a set of four variables (i.e., confused, hurt, embarrassed, and anxious) accounted for 83% of the variance in PTSD scores. Of that, confused alone accounted for 55% of the variance. These results appear to indicate that other reactions, aside from fear, are related to later symptomatology. The within-crime emotions that were associated with later PTSD symptoms tended to reflect cognitive confusion rather than simply fear.

Hollon and Garber (1988) pointed out that when a person is exposed to schema-discrepant information (such as a rape), one of two things usually happens. The information may be altered such that it can be assimilated into existing schemata ("The rape didn't happen," "Maybe it wasn't really rape," or "I must have done something bad that brought this on, because good people don't get raped"). Flashbacks and other intrusive memories may be attempts at integration when assimilation fails and when memories are triggered through environmental stimuli.

Another alternative is that the existing schemata can be altered to accommodate the discrepant information ("My neighborhood must be a dangerous place" or "Sometimes bad things happen to good people"). Most typically, assimilation occurs rather than accommodation. It appears easier to alter one's con-

ception of a single event than one's entire world view. However, even when accommodation does occur (which is a goal in therapy), without good social support, or guidance by a therapist, the accommodation may be maladaptive and extreme ("The world is a very dangerous place. I can't ever be safe" or "No one can be trusted"). Although overaccommodation was not proposed by Hollon and Garber (1988), we have observed it frequently in clinical settings with rape victims.

With regard to cognitive content, McCann, Sakheim, and Abrahamson (1988) proposed 5 major areas of functioning, or themes, that are affected and disrupted by victimization: safety, trust, power, esteem, and intimacy. Each of these areas of concern are further divided into two loci: schemata related to the self and schemata related to others. McCann et al. have linked each of these 10 areas of functioning with specific symptoms if prior positive schemata are disrupted or if previous negative schemata are seemingly confirmed by victimization. Although the McCann et al. theory is new and has not yet been empirically tested, the 5 major areas of psychological and interpersonal functioning have face-valid heuristic value and warrant investigation.

In their discussion of information processing theory in PTSD, Foa et al. (1989; Foa & Kozak, 1986) considered how established fear structures can be dismantled. They proposed that two conditions are necessary for the reduction of fear: (a) The fear memory must be activated and (b) new information must be provided that is incompatible with the current fear structure in order for a new memory to be formed. They suggest that activation can occur through any of the three network elements: information about the stimuli, responses, or meaning. They recommend the use of some type of exposure-based therapy to achieve this goal.

Foa et al. (1989) proposed that systematic exposure to the traumatic memory in a safe environment serves to alter the feared memory such that threat cues are reevaluated and habituated. However, although activation of the network, or schema, in a safe environment may sufficiently alter perceptions of danger, and hence, fear, there may be no change in emotional reactions other than fear without direct confrontation of conflicts, misattributions, or expectations. Victims may still blame themselves, feel they have not recovered or handled the event quickly enough, feel shame or disgust, or experience anger, all of which appear sufficiently intense to facilitate intrusive memories and avoidance reactions.

An approach that elicits memories of the event and then directly confronts conflicts and maladaptive beliefs might be more effective than prolonged exposure alone. Prolonged exposure activates the memory structure but does not provide direct corrective information regarding misattributions or other maladaptive beliefs. A cognitive processing therapy, specifically designed for treatment of PTSD, might provide another means for activating the memory structure. This cognitive activation would include conflicting beliefs and meanings attributed to the event and expectations regarding the future that might not be elicited by other forms of exposure therapy. Therefore, it may be more advantageous to implement a therapy that will activate the memories of the event and will also provide corrective information regarding conflicts and faulty attributions or expect-

tations that interfere with complete processing or cause other symptoms (e.g., depression, low self-esteem, and fear).

Although similar to Beck's cognitive therapy in many ways, cognitive processing therapy (CPT) is different in several respects. We do not assume that rape elicits previously existing distorted and dysfunctional thinking patterns, as in the case of depression (Beck, Rush, Shaw, & Emery 1979), or danger schemata, as in the case of fear and PTSD (Beck & Emery, 1985; Chemtob et al., 1988; Foa et al., 1989). Instead, we propose that the symptoms of PTSD (intrusion, avoidance, and arousal) are usually caused by conflicts between this new information and prior schemata. These conflicts *may* be concerned with danger and safety ("I thought I was safe in my own bed, now I feel in danger"), but they could reflect conflicts about other themes (e.g., self-esteem, competence, or intimacy). Therefore, although we include modules to introduce the concept of faulty thinking patterns or assumptions, most of the focus of CPT is on identifying and modifying "stuck points," conflicts between prior schemata and this new information (the rape).

It is also possible that, rather than the victim appraising the situation with faulty thinking patterns or there being a conflict with prior schemata as the source of stuck points, (a) negative, conflicting schemata are imposed by others (i.e., blaming comments from those expected to provide support), (b) the client's coping style is avoidant so she is unable to process the event in a complete manner (i.e., she has been taught to not think about unpleasant events), or (c) there is literally no relevant schema in which to store this new information (i.e., the event is so outside the range of her experiences and beliefs, it cannot be comprehended). Traditional Beckian therapy was not designed to deal with such circumstances.

Finally, whereas Beck's cognitive therapy tends to deemphasize the expression of emotions, CPT (as does prolonged exposure) encourages clients to feel their emotions. Following traumatic events, victims have overwhelming emotions that they attempt to suppress or avoid. If successful, they describe a complete numbing of affect. The exposure component of CPT is designed to encourage the expression of affect. Without this exposure component, there is no assurance that all of the emotions and their related beliefs will be elicited.

The purpose of the present study was to examine the effectiveness of CPT in a group format in the treatment of chronic, rape-induced PTSD. A second purpose was to examine the effectiveness of CPT in the treatment of depression. CPT contains three components: education about PTSD symptoms and information processing theory, exposure, and cognitive therapy. Rather than involving induced imagery, the exposure component consists of writing and reading a detailed account of the rape. The cognitive component includes training in identification of thoughts and affect, techniques for challenging maladaptive beliefs, and specific modules for five areas of beliefs: safety, trust, power, esteem, and intimacy.

CPT was developed in the context of an ongoing, evolving treatment program for rape victims. All clients participating in the program over the past 10 years have received a battery of tests and interviews at pretreatment, posttreatment, and 3- and 6-month follow-up. However, as new measures were developed to assess PTSD, they were added to the battery, while other, less valuable measures were dropped. Women were placed on a

waiting-list until there were enough participants to begin a new group. For this quasi-experimental study, CPT clients were compared with treatment seekers drawn from the ongoing program who were on the waiting list for at least 12 weeks before entering group therapy.

Method

Subjects

Twenty-eight women were interviewed and assessed for participation in CPT. Inclusion criteria were that the participants had been raped at least 3 months previously, had never been incest victims, had no severe competing pathology, and were reporting significant PTSD symptomatology. Four women were excluded from the study because they did not meet these criteria. Another three did not participate because of scheduling conflicts or because they moved. Another two began treatment but dropped out before completion. Nineteen women were therefore selected who completed CPT.

The waiting-list comparison sample consisted of 20 rape victims who met the same criteria and were on the waiting list for group treatment for at least 12 weeks. There were no significant differences in the demographics of the two groups of participants. The mean age of the two samples was 30.6 years ($SD = 7.3$) and mean years of education were 14.3 ($SD = 2.12$). There were two African-American participants in each sample, and the remainder were White. With the exception of one woman who had been repeatedly raped by her husband, the women had experienced one to three rapes ($M = 1.32$, $SD = .58$). The mean length of time since the most recent rape was 6.4 years ($SD = 6.9$). Most of the women were currently unmarried: 55.3% had never been married, 21% were separated or divorced, and 23.7% were married or cohabiting. In 42% of each group, rapes were committed by strangers only. The remaining 58% of subjects reported that at least one of their rapists was an acquaintance. Of the 19 CPT completers, 16 had received prior treatment for emotional problems since the rape. Eleven of the 16 prior treatment seekers had sought treatment from more than one source since the rape (median number of sessions = 10; range = 1-390 sessions).

Assessment Instruments

All of the measures chosen for assessment have been used in prior research with rape victims, have been found to differentiate victims from nonvictims, or victims with and without PTSD, and are sensitive to the natural recovery of victims in the first 3 months after the crime (Atkeson, Calhoun, Resick, & Ellis, 1982; Kilpatrick, Amick, Lipovsky, & Resnick, 1988; Kilpatrick, Resick, & Veronen, 1981; Kilpatrick, Veronen, & Resick, 1979; Resick, Calhoun, Atkeson, & Ellis, 1981; Rothbaum, Foa, Riggs, Murdock, & Walsh, in press). They are also sensitive to changes resulting from therapy (Foa, Rothbaum, Riggs, & Murdock, 1991; Resick, Jordan, Girelli, Hutter, & Marchhofer-Dvorak, 1988). The battery administered to the CPT sample included the following measures:

Symptom Checklist-90-Revised (SCL-90-R). The SCL-90-R (Derogatis, 1977) is a 90-item Likert scale used extensively with rape victims. Derogatis has reported acceptable test-retest and internal consistency reliability and both concurrent and discriminant validity for the scale. There are three global scales and nine symptom scales: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism.

In addition, Saunders, Arata, and Kilpatrick (1990) recently developed a 28-item PTSD scale derived from items on the SCL-90-R. This PTSD scale was able to classify correctly 89% of respondents. Although all nine subscales have been found to differentiate victims

from nonvictims, for this study, two scales were analyzed: the Depression scale and the PTSD scale. Subjects were asked to respond with regard to their symptoms over the preceding 2 weeks.

Impact of Event Scale (IES). The IES (Horowitz et al., 1979) is a 15-item scale that consists of two subscales: Cognitive Intrusion and Avoidance. It has acceptable internal consistency and test-retest reliability. Horowitz et al. (1979) reported the internal consistency of the subscales to be .78 for Intrusion and .80 for Avoidance and the split-half reliability for the total score to be .86. It has been shown to be sensitive to recovery of rape victims (Foa et al., 1991; Resick et al., 1988; Rothbaum et al., in press). Arata, Saunders, and Kilpatrick (1991) recently found the IES to classify correctly 84% of respondents with PTSD.

PTSD Symptom Scale—Self-Report (PSS-SR). This 17-item scale (Foa et al., in press) has three subscales representing all criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; *DSM-III-R*; American Psychiatric Association, 1987) for PTSD, including reexperiencing, avoidance and numbing, and high arousal. Foa et al. have reported a Cronbach's alpha of .91 for the total score and a 1-month test-retest correlation of .74 for rape victims who were less than 4 months postcrime. They also reported good concurrent validity with a number of other scales frequently used with rape victims, including the IES and the Beck Depression Inventory (Beck, Ward, Mendelson, & Erbaugh, 1961). Using the Structured Clinical Interview for *DSM-III-R* (Spitzer, Williams, & Gibbon, 1987) as the "gold standard," Foa et al. found the PSS-SR to correctly identify the PTSD status of 86% of respondents.

Beck Depression Inventory (BDI). The BDI (Beck et al., 1961) is a 21-item self-report questionnaire, widely used in research on depression (Beck, Steer, & Garbin, 1988). It has also been used to assess depression in rape victims (Atkeson et al., 1982) and was found to produce results similar to the Hamilton Rating Scale for Depression (Hamilton, 1960; Mowbray, 1972).

Social Adjustment Scale (SAS). The SAS (Weissman & Paykel, 1974) has been used in research to assess the social role functioning of depressed women. A self-report version of the SAS was used in this study as it was in previous research with rape victims (Resick et al., 1981). Although there are seven possible subscales, the only score used in the present study was the score for Overall Social Adjustment. In their prior research on social adjustment of rape victims, Resick et al. (1981) found that the comparison sample of nonraped women had a 1-month test-retest reliability of .74.

Structured Clinical Interview for DSM-III-R—Nonpatient version (SCID). The SCID (Spitzer et al., 1987) is a diagnostic interview developed from criteria in the *DSM-III-R*. The PTSD module was developed for the National Vietnam Veterans Readjustment Study (Kuika et al., 1988). For the present study, the PTSD and Depressive Disorders modules were used.

Because the battery of instruments has changed over the past 5 years, the only measure that all of the comparison subjects and CPT subjects had in common was the SCL-90-R. Therefore, the SCL-90-R was used to compare CPT and comparison subjects. Given the information cited above (Saunders et al., 1990) on the use of the SCL-90-R with crime victims, the scale should give a good estimate of the functioning of both samples of victims.

Therapists and Groups

We served as the therapists for this study. Three female clinical psychology graduate students also served as cotherapists for the groups. Therapy was supervised by Patricia A. Resick. Therapy was implemented in three groups of 8, 5, and 6 participants, respectively.

Procedure

Participants in this study were rape victims who were seeking treatment. They were referred from a number of victim assistance agencies

and mental health professionals or they were self-referred. After an initial screening on the telephone to ascertain the date of the rape and the woman's willingness to participate in the research project, an initial interview was conducted. If the woman met the inclusion criteria she was invited to participate in the study. Women were placed on a waiting list until there were enough participants to begin a group. The women were not discouraged from seeking individual treatment while on the waiting list and were given referrals if they so desired. Women remained on the waiting list for varying amounts of time.

Those women who remained on a waiting list for at least 12 weeks formed the waiting list sample. These women eventually received treatment but their treatment data are not presented in this article. CPT participants were assessed at pretreatment, 1-week posttreatment, and 3- and 6-month follow-up. At these sessions, participants were given a battery of assessment measures including the measures described earlier. The only measure that all subjects received, including the waiting list sample at both the pre- and posttreatment assessment periods, was the SCL-90-R.

Eight of the 19 CPT participants were assessed by an independent interviewer at all the posttherapy assessments. Of the 11 remaining CPT participants, one was unavailable for interviewing at all posttherapy sessions, and 10 were interviewed at posttherapy sessions by one of their therapists. An examination of the interviews and self-report measures indicates that the interviews were consistent and were not biased in favor of improvement. In fact, all cases in which PTSD or depression was found at posttherapy assessments occurred when the interviewer was the therapist.

CPT consisted of twelve 1½-hr weekly sessions. At the first session, an information processing formulation of PTSD was presented, and participants were asked as homework to write about the meaning of the event for them. At the second session, clients were taught to identify and differentiate feelings from thoughts and were given A-B-C sheets as homework, so that they could see the connection between self-statements and emotions. During the next two sessions the clients were asked to write an account of the rape. Rather than a dry, factual version, all of the sensory details, emotions, and thoughts they could remember were solicited. They were also encouraged to experience their emotions fully while writing and reading over the account. These two sessions constituted the exposure component of CPT. All of these homework assignments were also used to identify "stuck points," areas of incomplete processing or conflict.

Beginning with the fifth session, CPT clients were taught to identify and challenge maladaptive beliefs. After they had identified some of their maladaptive beliefs, the clients were given a list of questions to ask themselves, adapted from Beck and Emery (1985). The initial focus was typically on self-blame and on acceptance of the event. In the sixth session, the clients were introduced to the concept of faulty thinking patterns. During the seventh session, each client was given a "challenging beliefs" worksheet, which is a much more elaborate version of the A-B-C sheet and which incorporates the list of challenging questions and analysis of faulty thinking patterns (adapted from Beck & Emery, 1985).

Also at the seventh session, the first of five areas of beliefs was introduced. On the basis of work by McCann et al. (1988), five themes that were likely to have been affected by the rape were discussed and then analyzed for homework with worksheets. These areas of belief were safety, trust, power, esteem, and intimacy. Modules discussing each of these themes were given to the clients to read and consider. These modules described how prior positive beliefs could be disrupted, or prior negative beliefs confirmed, by rape. Each theme was also considered with regard to the client's beliefs regarding herself and others. Suggestions for possible resolutions (more adaptive self-statements) were also included. The themes were presented sequentially and analyzed, one per week (Sessions 7-11). At the session follow-

ing the introduction of the topic, the homework was discussed and the therapists and group members helped each other confront particularly difficult stuck points. At the 11th session, the clients were asked to write again about the meaning of the event, without referring to their first assignment.

The final session was used to conclude analysis of beliefs regarding intimacy and to discuss the client's essay and goals for the future. Throughout therapy, it was emphasized that the purpose of the therapy was to teach clients skills they would need to continue to work on their own particular dysfunctional thinking patterns or assimilated beliefs. For more information regarding CPT, the treatment manual is being published as a book (Resick & Schnicke, in press).

Results

Correlations of Dependent Variables

The correlation matrix for the dependent variables of the 19 CPT clients at the pretreatment session is presented in Table 1. Although the reexperiencing symptoms were not correlated with the avoidance, social adjustment, or depressive symptoms, most of the other subscales were at least moderately correlated with one another.

CPT Versus Waiting-List Control Samples

The means and standard deviations of the two groups, CPT and waiting list, for each of the pretreatment and posttreatment assessment sessions are presented in Table 2. The groups were compared by means of 2 (CPT vs. waiting list) \times 2 (pre- vs.

posttreatment) analyses of variance (ANOVAs) on SCL-90-R Depression and PTSD subscales. On both ANOVAs, there were significant interaction and session effects, but no group main effects (See Table 3). Post hoc analyses of simple main effects indicated that the interactions were accounted for by changes in the CPT sample from pre- to posttreatment. There were no differences between groups at either session nor were there differences for the waiting-list group between the two assessment sessions.

CPT Treatment Effects

Repeated measures analyses were conducted on the larger battery of instruments with the CPT group to determine the changes over time. Multivariate analyses of variance (MANOVAs) were conducted on the two subscales of the IES and the three subscales of the PSS-SR. ANOVAs were conducted on the BDI, the Overall Adjustment score of the SAS, and two subscales of the SCL-90-R.

First, analyses were conducted on pre- versus posttreatment. Next, analyses were conducted on posttreatment versus 3-month follow-up and posttreatment versus 6-month follow-up. At the 6-month follow-up, 17 of the 19 original subjects were able to complete the self-report scales. Table 4 presents the means and standard deviations on all measures over the four assessment sessions. Table 5 presents the results of the MANOVAs and ANOVAs from pre- to posttreatment. On all of the

Table 1
Correlations Between PTSD and Depression Measures in the Pretreatment CPT Sample ($n = 19$)

Measure	1	2	3	4	5	6	7	8	9
1. PSS-Reexperiencing									
Correlation		.21	.52	.78	.17	.40	-.02	.46	.33
<i>p</i>		<i>ns</i>	.05	.0001	<i>ns</i>	<i>ns</i>	<i>ns</i>	.06	<i>ns</i>
2. PSS-Avoidance									
Correlation			.52	.32	.64	.60	.72	.57	.56
<i>p</i>			.05	<i>ns</i>	.005	.01	.0005	.05	.05
3. PSS-Arousal									
Correlation				.71	.60	.63	.38	.66	.50
<i>p</i>				.001	.01	.005	<i>ns</i>	.005	.05
4. IES-Intrusion									
Correlation					.34	.54	.16	.61	.50
<i>p</i>					<i>ns</i>	.05	<i>ns</i>	.01	.05
5. IES-Avoidance									
Correlation						.75	.73	.55	.59
<i>p</i>						.0005	.0005	.05	.01
6. Beck Depression Inventory									
Correlation							.63	.73	.80
<i>p</i>							.005	.001	.0001
7. Social Adjustment Scale									
Correlation								.54	.68
<i>p</i>								.05	.005
8. SCL-90-R—PTSD									
Correlation									.89
<i>p</i>									.0001
9. SCL-90-R—Depression									
Correlation									
<i>p</i>									

Note. PTSD = posttraumatic stress disorder; CPT = cognitive processing therapy; PSS = PTSD Symptom Scale; IES = Impact of Event Scale; SCL-90-R = Symptom Checklist-90—Revised.

Table 2
Means and Standard Deviations of CPT and Waiting-List Control Samples on SCL-90-R Subscales

Group and measure	Pretreatment		Posttreatment	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
CPT (<i>n</i> = 18)				
SCL-90-R—PTSD	1.56	0.84	0.93	0.51
SCL-90-R—Depression	2.15	0.88	1.39	0.77
Waiting list (<i>n</i> = 20)				
SCL-90-R—PTSD	1.37	0.80	1.35	0.78
SCL-90-R—Depression	1.78	0.94	1.71	0.94

Note. CPT = cognitive processing therapy; SCL-90-R = Symptom Checklist-90—Revised; PTSD = posttraumatic stress disorder.

measures, there were significant changes from pre- to post-treatment.

There were no significant changes from posttreatment to 3-month follow-up, except for the BDI: $F(1, 15) = 5.06, p < .05$. CPT subjects continued to show improvement on their BDI scores from posttreatment through the 3-month follow-up. From posttreatment to the 6-month follow-up there were no significant changes on any of the measures.

SCID Results and Clinical Significance

On the basis of the initial SCID interview for PTSD and depressive disorders, 17 out of the 19 women met full *DSM-III-R* criteria for PTSD, and 12 of the women (63%) met criteria for current major depression. The 2 women who did not meet full PTSD criteria were allowed to participate because they reported severe levels of symptomatology, but did not report enough different types of symptoms to meet full criteria according to the *DSM-III-R*.

At posttreatment, none of the women met full criteria for PTSD. Five of the women still met criteria for major depression (42%). At the 3-month follow-up, 3 of the subjects were unavailable for the interview. Of the 16 subjects remaining, 2 met criteria for PTSD (12.5%) and 1 met criteria for depression (6%). At the 6-month follow-up, another subject was unavailable for the interview because she had moved. None of the remaining 15 women met criteria for PTSD, and 1 woman met criteria for depression.

To examine clinical change on the self-report scales, two measures were chosen because they have standardized norms. The PTSD subscale from the SCL-90-R was analyzed using nonvictim–non-PTSD–victim *t* scores (Saunders et al., 1990). At the pretherapy assessment, 61% of the subjects scored at least two standard deviations above the normative mean on the PTSD subscale. At posttreatment, only 16% continued to receive a *t* score at or above 70. At the 3-month follow-up, 12% were elevated and at the 6-month follow-up, 11% were still elevated. Fifty-two % improved at least one standard deviation in the scores from pre- to posttreatment. From pretreatment to the 6-month follow-up, 68% improved at least one full standard deviation, and 81% of the sample improved at least one half standard deviation.

On the BDI, the cutoff scores recommended by Beck et al. (1988) were used as the measure of clinical change. A score of less than 10 represents *no or minimal depression*; a score of 10–18 represents *mild to moderate depression*; a score of 19–29 represents *moderate to severe depression*; and a score of 30–63 represents *severe depression*. In this study, only 3 subjects (15%) scored in the low range before treatment. Five subjects (26%) scored in the mild–moderate range, 4 (21%) scored in the moderate–severe range, and 7 (37%) scored 30 or more, indicating severe depression. At posttreatment, 47% were in the nondepressed range, and 32% were in the moderate–severe range. None of the subjects scored in the severe range at posttreatment. By 6-month follow-up, only 3 subjects (18%) still scored in the moderate–severe range. The remainder were in the nondepressed range (47%) or in the mild–moderate range (35%).

Discussion

The results of this study indicate that cognitive processing therapy, developed from an information–emotional processing theory of PTSD, is effective in improving symptoms in a large majority of participants. CPT resulted in significant improvement in both PTSD and depressive symptomatology when implemented in a 12-session group format. Aside from statistical changes in scores, CPT resulted in clinically significant changes. Many of the women reported substantial improvements in the quality of their lives. The naturally occurring waiting-list comparison sample did not improve over the same period of time. The improvements noted in CPT completers in symptoms and social functioning were maintained over a 6-month period.

Given that most of the rape victims we treated had been suffering rape-related reactions for years, this treatment may offer even more hope, as it appears to be effective with those who have suffered from chronic symptomatology. As more women are labeling their experiences as rape, it is likely that mental health professionals will encounter more women seeking treatment who were raped years ago.

Although the results of this study appear promising, the limitations deserve attention. The first limitation is that the subjects were not randomly assigned, creating a quasi-experimen-

Table 3
Analyses of Variance of SCL-90-R Subscales Across Two Assessment Sessions (Pre- and Posttreatment) Between CPT and Waiting-List Control Samples

Measure	<i>df</i>	<i>F</i>	<i>p</i>
SCL-90-R—PTSD			
Group	1, 37	0.70	<i>ns</i>
Sessions	1, 37	9.88	.005
Group × Sessions	1, 37	8.41	.01
SCL-90-R—Depression			
Group	1, 37	0.01	<i>ns</i>
Sessions	1, 37	6.73	.05
Group × Sessions	1, 37	4.69	.05

Note. SCL-90-R = Symptom Checklist-90—Revised; PTSD = posttraumatic stress disorder.

Table 4
Means and Standard Deviations of CPT Sample Over Time

Measure	Pretreatment	Posttreatment	3-month FU	6-month FU
Impact of Event Scale				
Intrusion				
<i>M</i>	17.84	8.26	10.38	8.94
<i>SD</i>	10.13	8.48	11.38	9.79
Avoidance				
<i>M</i>	25.05	10.00	10.25	8.76
<i>SD</i>	11.92	9.66	10.64	9.98
PTSD Symptom Scale				
Reexperiencing				
<i>M</i>	5.53	2.63	3.75	2.94
<i>SD</i>	3.50	2.63	3.57	2.97
Avoidance				
<i>M</i>	11.53	5.89	5.75	5.65
<i>SD</i>	5.94	4.04	5.09	4.65
Arousal				
<i>M</i>	10.74	5.95	5.44	5.76
<i>SD</i>	4.54	4.14	5.38	5.08
Beck Depression Inventory				
<i>M</i>	21.68	13.16	9.69	10.06
<i>SD</i>	10.80	8.32	6.80	7.09
Symptom Checklist-90-Revised				
PTSD				
<i>M</i>	1.56	0.93	0.79	0.79
<i>SD</i>	0.84	0.51	0.58	0.66
Depression				
<i>M</i>	2.15	1.39	1.14	1.10
<i>SD</i>	0.88	0.77	0.72	0.73
Social Adjustment Scale				
<i>M</i>	2.43	2.10	2.00	2.07
<i>SD</i>	0.51	0.50	0.43	0.50

Note. CPT = cognitive processing therapy; FU = follow-up; PTSD = posttraumatic stress disorder.

tal design. However, given the fact that we were unable to ascertain at the first assessment session whether participants would be required to wait for 3 months before they received treatment, our sample was as random as possible given the circumstances. We could not start a group until we had interviewed enough

appropriate subjects, which all depended on the number of victims who contacted us and were willing to participate in the research. All participants were told that a group would be starting as soon as we had interviewed enough women to begin.

The second limitation is that because CPT was not compared

Table 5
Repeated Measures MANOVAs and ANOVAs on Outcome Measures for CPT Recipients Pre- Versus Posttreatment

Measure	MANOVA	ANOVA
Impact of Event Scale	$F(2, 17) = 27.16, p < .0001$ Pillai's trace = .76	
Intrusion		$F(1, 18) = 46.24, p < .0001$
Avoidance		$F(1, 18) = 28.31, p < .0001$
PTSD Symptom-Scale	$F(3, 16) = 16.81, p < .0001$ Pillai's trace = .76	
Reexperiencing		$F(1, 18) = 29.31, p < .0001$
Avoidance		$F(1, 18) = 22.86, p < .0001$
Arousal		$F(1, 18) = 14.55, p < .005$
Beck Depression Inventory		$F(1, 18) = 12.97, p < .005$
Symptom Checklist-90—Revised		
PTSD		$F(1, 18) = 13.20, p < .005$
Depression		$F(1, 18) = 8.86, p < .01$
Social Adjustment Scale		$F(1, 18) = 12.26, p < .005$

Note. MANOVAs = multivariate analyses of variance; ANOVAs = analyses of variance; PTSD = posttraumatic stress disorder.

with other treatments, the superiority of CPT as a treatment for sexual assault victims cannot be assessed. Additionally, CPT consists of two general components: exposure and cognitive therapy. Given the lack of comparison between CPT and other forms of therapy consisting of either one of these components, we were unable to determine the relative importance of each of these components separately, or the relative effectiveness of their combination. Future research should assess the relative importance of cognitive processing techniques compared with pure exposure.

Aside from the methodological limitations of the study and the need for replication, several other questions remain for future research. Relative to the cognitive component, the exposure component was relatively brief (two sessions). An evaluation of the relative effectiveness of a longer exposure component might be helpful in determining an optimal treatment. Furthermore, CPT uses writing and reading about the rape rather than imaginal exposure. A comparison of the effectiveness of these two exposure techniques would be an important addition to the clinical literature.

It is unknown how CPT in a group versus individual format would compare. The group format might facilitate the modification of cognitions because of the greater exposure to alternative points of view and the confrontation of stuck points. Individual treatment might allow the therapist to focus more directly on an individual client's disrupted thinking patterns. Furthermore, it is possible that the exposure component, the writing assignments, would be more effective if the client could read them out loud to the therapist during the session, a technique that was not possible in the 12-session group format. Nevertheless, the group format has advantages with regard to cost effectiveness and the potential for social support. Further research will be necessary to determine if there are differences in outcome between group and individual CPT.

Finally, CPT was developed from the theory that PTSD results from inadequate processing of the rape because of assimilation or overaccommodation. Although the symptoms of PTSD were assessed before and after treatment, this study did not include an assessment of the clients' cognitions pre- and posttreatment. An interesting direction for future research would be to examine the content of cognitions before and after different forms of therapy.

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