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The Posttraumatic Cognitions Inventory (PTCI): Development and Validation

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This article describes the development and validation of a new measure of trauma-related thoughts and beliefs, the Posttraumatic Cognitions Inventory (PTCI), whose items were derived from clinical observations and current theories of post-trauma psychopathology. The PTCI was administered to 601 volunteers, 392 of whom had experienced a traumatic event and 170 of whom had moderate to severe posttraumatic stress disorder (PTSD). Principal-components analysis yielded 3 factors: Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame. The 3 factors showed excellent internal consistency and good test–retest reliability; correlated moderately to strongly with measures of PTSD severity, depression, and general anxiety; and discriminated well between traumatized individuals with and without PTSD. The PTCI compared favorably with other measures of trauma-related cognitions, especially in its superior ability to discriminate between traumatized individuals with and without PTSD.

Many trauma theories hypothesize that traumatic events produce changes in the victim's thoughts and beliefs (e.g., Ehlers & Clark, in press; Epstein, 1991; Foa & Riggs, 1993; Foa & Rothbaum, 1998; Horowitz, 1986; Janoff-Bulman, 1992; McCann & Pearlman, 1990; Resick & Schnicke, 1992) and that these changes play an important role in the emotional response to trauma. Although all of these theories highlight the importance of trauma-related cognitions, they vary with respect to the specific cognitions that are thought to be involved. For example, Epstein emphasized the importance of four core beliefs that he suggested change after a traumatic experience: the belief that the world is benign, that the world is meaningful, that the self is worthy, and that people are trustworthy. A similar formulation was offered by Janoff-Bulman (1992), who developed the World Assumptions Scale (WAS; Janoff-Bulman, 1989, 1992) to measure perceived self-worth and benevolence of the impersonal world. The scale was found to discriminate between trauma victims and nonvictims (Janoff-Bulman, 1989). McCann and Pearlman (1990) extended the scope of themes that are influenced by a traumatic experience, suggesting that traumatic events cause disruptions in beliefs about safety, trust, power, esteem, and intimacy. Epstein, Janoff-Bulman (1992), and McCann and Pearlman primarily focused on cognitive differences between nontraumatized individuals and individuals who experienced a trauma.

However, it is important to remember that not all trauma victims develop posttraumatic stress disorder (PTSD), and many who initially develop PTSD recover over time. Recent theorists have implicated individual differences in victims' perception of both the trauma and its sequelae in the development of trauma-related psychopathology. Influenced by McCann and Pearlman's (1990) theory, Resick, Schnicke, and Markway (1991) developed the Personal Beliefs and Reactions Scale (PBRS) to assess beliefs in rape victims with chronic PTSD and to measure change in beliefs after therapy. In addition to McCann and Pearlman's five original themes, the PBRS includes scales of negative beliefs about rape, self-blame, and undoing. The PBRS correlates with PTSD severity (Resick et al., 1991; Wenninger & Ehlers, 1998) and is sensitive to treatment-induced changes in cognitions (Resick & Schnicke, 1992).

To explain both the development and maintenance of PTSD, Foa and her colleagues (Foa & Riggs, 1993; Foa, Steketee, & Rothbaum, 1989; Foa, Zinbarg, & Rothbaum, 1992) adopted emotional processing theory (Foa & Kozak, 1986; Rachman, 1980), suggesting that PTSD is a consequence of disruptions in the normal processes of recovery. Specifically, Foa and Riggs and Foa and Rothbaum (1998) proposed two basic dysfunctional cognitions that mediate the development of PTSD: the world is *completely* dangerous, and one's self is *totally* incompetent. The hypothesized relationship between these cognitions and PTSD is depicted in Figure 1. Foa and Rothbaum further suggested that there are two distinct ways by which people acquire these dysfunctional cogni-

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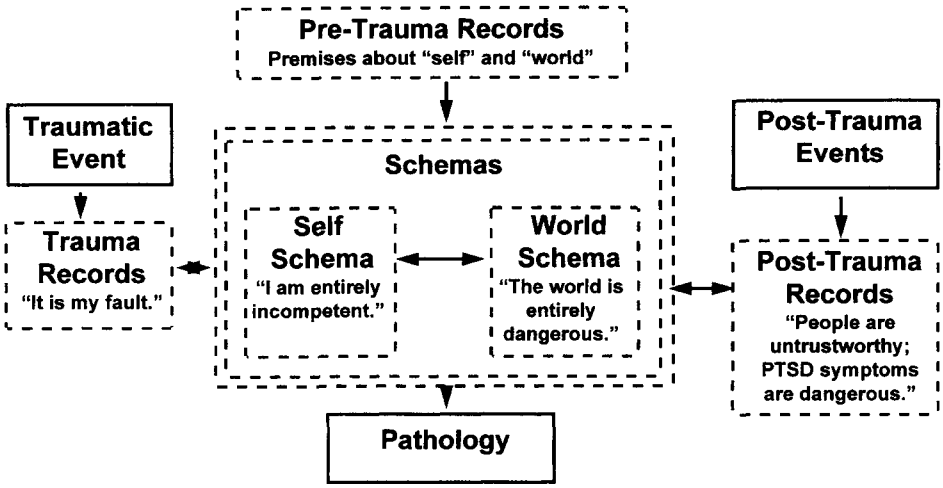

Figure 1. Schematic model underlying posttraumatic stress disorder. From *Treating the Trauma of Rape* (p. 84), by E. B. Foa and B. O. Rothbaum, 1998, New York: Guilford Press. Copyright 1998 by Guilford Press. Reprinted with permission.

tions: First, individuals who entered the traumatic experience with the notion that the world is extremely safe and that they are extremely competent have difficulty in assimilating the traumatic experience, and therefore overaccommodate their schemas about self and world. Second, the traumatic experience primes existing schemas of the world as a dangerous place and oneself as incompetent in individuals who had experienced traumas throughout their lives. Thus, the presence of rigid concepts about self and world (positive or negative) renders individuals vulnerable to develop PTSD. On the other hand, individuals who have finer discrimination of degrees of safety and competence are more able to interpret the trauma as a unique experience that does not have broad implications for the nature of the world and the nature of their ability to cope with it. Foa and Rothbaum hypothesized that if PTSD is mediated by the cognitive distortions that the world is extremely dangerous and oneself is completely incompetent, then successful treatment would correct these cognitions. Indeed, after cognitive behavioral therapy, patients with chronic PTSD reported more positive views about themselves and about the world than before treatment (Foa, 1997; Tolin & Foa, in press).

Like Foa's group, Ehlers and colleagues (Ehlers & Clark, in press; Ehlers & Steil, 1995) have suggested that individual differences in the personal meaning (appraisal) of the trauma and its sequelae determine whether persistent PTSD develops. Some people are able to see the trauma as a time-limited, terrible experience that does not necessarily have negative implications for the future, and may also be able to find some element of personal growth in it. These people are likely to recover quickly. Individuals with persistent PTSD are characterized by excessively negative appraisals of the event, its sequelae, or both. These negative appraisals are thought to maintain PTSD by producing a sense of current threat that is accompanied by intrusions, arousal, and strong emotions such as anxiety, anger, shame, or sadness. The negative appraisals also prompt a series of dysfunctional cognitive and behavioral responses that have the short-term aim of reducing distress but have the long-term consequence of preventing cognitive change and therefore maintaining the disorder.

A series of preliminary studies has provided support for the importance of the cognitive variables highlighted by the Foa and Ehlers–Clark groups. Excessively negative appraisals of the traumatic event were related to persistent PTSD (Dunmore, Clark, & Ehlers, 1997, in press) in assault victims. Negative appraisals of initial PTSD symptoms predicted persistent PTSD in studies of motor vehicle accident survivors and assault victims (Dunmore et al., in press; Ehlers, Mayou, & Bryant, 1998). Perceived permanent change and an overall feeling of alienation impede recovery in rape victims and in survivors of torture and assault (Dunmore et al., 1997, in press; Ehlers, Clark, et al., 1998; Ehlers, Maercker, & Boos, in press).

The present study is a joint effort of the Philadelphia and Oxford groups to develop a comprehensive measure of the appraisals of trauma and its sequelae that these groups suggest are involved in the development and persistence of PTSD. This article describes the development of this scale and compares its usefulness to the two existing measures of trauma-related cognitions, the WAS and the PBRS.

Method

Participants

Six hundred one adult volunteers completed a battery of questionnaires. Participants included 110 (18.3%) patients seeking treatment for chronic and acute posttraumatic symptoms at MCP Hahnemann University and Oxford University Departments of Psychiatry; 190 (31.7%) individuals recruited from the community through newspaper advertisements and flyers; and 300 (50%) undergraduate volunteers from Oklahoma State University.

Three hundred ninety-two participants (65%) reported having experienced a trauma that met *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*) Criterion A; that is, an experience in which their own life or that of another person was perceived to be in danger, and their response at the time included intense terror, horror, or helplessness (American Psychiatric Association, 1994). Two hundred nine (35%) participants denied experiencing a trauma that satisfied *DSM–IV* Criterion A.

These nontrauma participants completed the questionnaires with reference to their most upsetting life experience.

For group comparisons, participants were divided into three categories: individuals who had experienced a traumatic event and had PTSD of at least moderate severity (15 or above on the Posttraumatic Stress Diagnostic Scale [PDS; Foa, 1995], $N = 170$), individuals who had experienced a traumatic event but did not have PTSD and had low-PTSD symptom severity (below 15 on the PDS, $N = 185$), and nontraumatized individuals who scored below 15 on the PDS ($N = 162$). This cutoff was derived from a discriminant function analysis revealing that a score of 15 best predicted diagnostic status (Foa, 1998). Eighty-four participants did not meet criteria for any of these three groups and thus were not used in between-groups comparisons. Demographic and symptom information for the three groups is presented in Table 1. There were significant differences in sex, $\chi^2(2, N = 517) = 24.28, p < .001$; age, $F(2, 440) = 21.52, p < .001$; race, $\chi^2(8, N = 249) = 51.22, p < .001$; and type of trauma among the groups. In comparison with the other groups, participants in the PTSD group were somewhat older and were more likely to be female and African American. They also showed elevated levels of PTSD, $F(2, 422) = 830.38, p < .001$; depression, $F(2, 510) = 190.95, p < .001$; state anxiety, $F(2, 163) = 51.50, p < .001$; and trait anxiety, $F(2, 164) = 51.43, p < .001$.

Table 1
Sample Characteristics by Trauma History and Diagnostic Group

Characteristic	Diagnostic group: No trauma	Trauma (no PTSD)	PTSD
Age in years	24.6 (10.0)$_a$	25.3 (11.7)$_a$	33.1 (12.3)$_b$
Gender			
Male	44$_a$	42$_a$	20$_b$
Female	56$_a$	58$_a$	78$_b$
Race			
White	72$_a$	82$_a$	58$_b$
Black	8$_a$	10$_a$	35$_b$
Hispanic	2	0	0
Asian	13$_a$	1$_b$	1$_b$
Other	5	6	5
Type of event			
Accident	15	31	32
Disaster	8	10	0
Nonsexual assault	11	15	13
Sexual assault	13	5	20
Combat or war zone	0	1	1
Child sexual abuse	11	1	7
Imprisonment	3	1	3
Torture	0	0	1
Illness	1	10	6
Other	38	26	17
Time since event			
Less than 1 month	5	2	3
1–6 months	8	9	17
6 months–3 years	27	29	33
More than 3 years	60	60	47
PTSD Diagnostic Scale total	3.6 (4.2)$_a$	4.3 (4.3)$_a$	30.6 (9.1)$_b$
Beck Depression Inventory	6.4 (6.7)$_a$	5.6 (5.1)$_a$	19.9 (10.2)$_b$
State–Trait Anxiety Inventory			
State	29.0 (10.3)$_a$	35.4 (12.1)$_b$	51.2 (13.3)$_c$
Trait	32.5 (9.7)$_a$	36.2 (12.1)$_a$	52.4 (12.1)$_b$

Note. Within each row, subscripts $_{a, b,}$ and $_c$ are significantly different from each other ($p < .05$). Age and race are calculated for a smaller sample; 15% of participants did not report their age, and 52% did not report their race. Data are presented as percentages, except for age (years) and test scores (at end of table). PTSD = posttraumatic stress disorder.

The traumatized groups with and without PTSD were compared with respect to the type of traumatic event they had experienced. Because of low frequencies of some types of trauma, we collapsed the 12 original categories into 4 categories: disasters and accidents, nonsexual assault, sexual assault, and life-threatening illness. A significant group difference emerged, $\chi^2(3, N = 517) = 24.15, p < .001$. Further analyses showed that the groups differed with respect to proportion of participants with sexual assault, $\chi^2(1, N = 355) = 25.49, p < .001$. Of the traumatized individuals with PTSD, 28% had experienced sexual assault, compared with 6% of those without PTSD. The groups did not differ in the amount of time that had elapsed since the trauma.

Two additional samples were recruited to investigate the test–retest reliability of the Posttraumatic Cognitions Inventory (PTCI). The first retest sample consisted of 24 people (19 women) who participated in different studies of PTSD at MCP Hahnemann University. They completed the PTCI twice, with a retest interval of 1 week. Their mean score on the PDS was 26.3 ($SD = 11.9$), and 18 participants met criteria for PTSD. Mean age was 37.2 years ($SD = 12.5$). The majority had experienced accidents (36.4%), or sexual assault (27.3%) or physical assault (21.3%). Combat–war zone experiences, child sexual abuse, or life-threatening illness were each reported by 3% of the participants, and 6% reported other trauma. Ten participants experienced a trauma 1 month before the first test; 1 participant, 1–3 months; 4 participants, 3–6 months; 2 participants, 6 months–3 years; 1 participant, 3–5 years; and 4 participants, more than 5 years. Three participants did not report time since trauma.

The second test–retest sample consisted of 52 people (32 women) who participated in an early intervention study at Oxford University. They had experienced a road traffic accident 3–6 months before entering the study. They completed the PTCI before coming to the initial assessment and 3 weeks later. Their mean age was 38.8 years ($SD = 12.6$). Their mean score on the PDS was 17.7 ($SD = 12.8$), and 30 met criteria for PTSD.

Item Pool of the Posttraumatic Cognitions Inventory

One hundred fourteen items were generated by Edna B. Foa, David M. Clark, and Anke Ehlers on the basis of theoretical considerations and detailed clinical interviews with victims of a wide variety of traumas (e.g., sexual and nonsexual assault, motor vehicle accidents, industrial and natural disasters, ambulance workers, sudden death, political prisoners). These items were reviewed by six experts on PTSD and cognitive–behavioral therapy who also had extensive experience with victims of a wide range of traumas. This review resulted in the exclusion of four items and rewording of some of the remaining items. The items represented the following concepts: *general negative view of self* (27 items), such as "I am inadequate," "I am a wimp"; *perceived permanent change* (23 items), such as "I have permanently changed for the worse," "I will never be able to form close, loving relationships again"; *alienation from self and others* (4 items), such as "I feel isolated and set apart from others," "I am different from other people"; *hopelessness* (7 items), e.g., "I have no future," "Things will never be good again"; *negative interpretation of symptoms* (7 items), such as "My reactions since the event mean that I am going crazy," "Other people with the same experience would be O.K. by now," "If I think about the event I will not be able to handle it"; *self-trust* (5 items), such as "I can't trust that I will do the right thing," "I can't trust myself"; *self-blame* (17 items), such as "It happened to me because of the way I acted," "I am ashamed of myself"; *trust in other people* (10 items), such as "Other people are not what they seem," "Nobody cares about me"; *unsafe world* (10 items), such as "The world is a dangerous place," "I have to be on guard all the time." Participants rated each item using a 7-point Likert-type scale from 1 (*totally disagree*) to 7 (*totally agree*). Thus, high scale scores indicate stronger endorsement of negative cognitions.

Measures

Posttraumatic Stress Diagnostic Scale. The PDS (Foa, 1995; Foa, Cashman, Jaycox, & Perry, 1997) is a self-report measure of PTSD.

Participants are asked to rate how much they were bothered by each of the PTSD symptoms specified in the *DSM–IV* on a scale ranging from 0 (*not at all* or *only one time*) to 3 (*5 or more times a week/almost always*). In addition, they indicate whether or not the symptoms interfere with a variety of areas of their lives. The PDS yields both a PTSD diagnosis according to *DSM–IV* criteria and a measure of PTSD severity. It demonstrated high internal consistency (r = .92) and good test–retest reliability (r = .74 for the diagnosis of PTSD and .83 for symptom severity). It showed good diagnostic agreement with the Structured Clinical Interview for *DSM–IV* and good sensitivity and specificity (r = .65; agreement = 82%; sensitivity = .89; specificity = .75).

Beck Depression Inventory (BDI). The BDI (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961) is a 21-item self-report measure of depression that has been shown in previous research to have good reliability and validity. The BDI's internal consistency ranges from .58 to .93, and test–retest reliability estimates range from .69 to .90. The BDI correlates highly (r = .96) with clinician ratings of depression (Beckham & Leber, 1995).

State–Trait Anxiety Inventory Form Y (STAI). The STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) is a 40-item self-report measure of general anxiety. The first 20 items assess state anxiety, or how the participant feels right now; the second 20 items assess trait anxiety, or how the participant generally feels. The STAI has been shown in previous research to have good reliability and validity. Test–retest reliability for the trait anxiety scale is .81, and for state anxiety, .40. This discrepancy is predicted because the state anxiety construct implies fluctuations, whereas the trait anxiety construct connotes relative stability. Internal consistency coefficients of the two scales range from .83 to .92 (Spielberger et al., 1983).

World Assumptions Scale (WAS). The WAS (Janoff-Bulman, 1989, 1992) is a 33-item scale that measures assumptions about the world, with each item rated on a 6-point Likert-type scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Thus, high scale scores indicate stronger endorsement of each belief. The WAS includes eight subscales: Benevolence of the World, Self-Worth, Benevolence of People, Justice, Controllability, Randomness, Self-Controllability, and Luck. Internal consistencies for the eight WAS scales range from .67 to .78. Confirmatory factor analysis supports the WAS scales, with one exception: The Benevolence of the World and Benevolence of People scales emerged as a single factor. Discriminant function analysis and analyses of variance showed that three scales discriminated trauma victims from nonvictims: Self-Worth, Randomness, and Benevolence of the World (Janoff-Bulman, 1989). In a large sample of individuals with high, moderate, low, and no exposure to a serious bus accident, Solomon, Iancu, and Tyano (1997) found that high-exposure participants reported less belief in Benevolence of the World, Luck, and Justice on the WAS than did participants in the other groups. The WAS subscales Self-Worth, Luck, Benevolence of the World, and Benevolence of People correlated significantly with a variety of measures of psychological distress.

Personal Beliefs and Reactions Scale (PBRS). The PBRS (Resick et al., 1991) is a 55-item instrument using Likert-type scales from 0 (*not at all true for you*) to 6 (*completely true for you*). Some items are reverse-scored, and low scale scores indicate stronger endorsement of dysfunctional beliefs. Participants are asked to rate the degree to which they agree with beliefs about Safety, Trust, Power, Esteem, Intimacy, Self-Blame, Undoing, and Rape Beliefs. All items representing beliefs about the self from the first five scales compose an additional scale, *Self,* and those regarding other people are summarized in an additional scale, *Others.* In female rape survivors, internal consistency coefficients for the PBRS scales range from .60 to .79, with a mean of .71 (Mechanic & Resick, 1999). In samples of rape survivors, the PBRS Self, Self-Blame, Undoing, and Safety subscales predicted intrusive symptoms of PTSD; the Trust, Self-Blame, Undoing, and Intimacy subscales predicted avoidant symptoms of PTSD; and the Power and Safety subscales predicted arousal symptoms of PTSD. PBRS scores changed after successful treatment for PTSD, thus demonstrating sensitivity to treatment (Resick et al., 1991; Mechanic & Resick, 1993). Rape survivors with high PBRS scores reported using more "disengagement" coping strategies than did rape survivors with low PBRS scores (Mechanic & Resick, 1993). Among survivors of child sexual abuse, the PBRS scales Safety, Trust, Esteem, Intimacy, Self, and Others correlated significantly with severity of PTSD symptoms (Wenninger & Ehlers, 1998). For the purposes of this study, several modifications were made. First, the Rape Beliefs scale was dropped because most of our participants were not rape victims. Second, all other items that referred to rape were reworded to apply to traumatic events in general (e.g., "I frequently have fantasies of other ways I could have *stopped the trauma*"). Third, for a few items, the introductory statements "I feel" or "I think" were added to ensure that participants rated their personal beliefs rather than what they thought was true objectively (e.g., "I feel *there was probably no way I could have defended myself*").

Results

Kolmogoroff–Smirnov tests of the distributions of scores on the PTCI, PBRS, and WAS showed that many of the subscales were not normally distributed. Therefore, nonparametric statistics were used whenever possible, including Spearman correlations, Kruskal–Wallis tests, and Mann–Whitney U tests. Alpha levels were set at $p < .01$ because of the large sample size and the large number of scales. Item selection for the PTCI, factor analyses, and correlations with measures of psychopathology were performed on the traumatized sample only. Group comparisons included all participants.

Factor Analyses and Item Retention

We submitted the PTCI items to a principal-components factor analysis with oblimin rotation. Visual examination of the scree plot suggested a three-factor solution. The first factor explained 48.5% of the variance, and the second and third factors, an additional 4% and 3.4%, respectively. Inspection of the items with high factor loadings suggested that the factors represented (a) Negative Cognitions About Self, (b) Negative Cognitions About the World, and (c) Self-Blame for the trauma. Items that loaded more than .50 on a given factor and less than .30 on the remaining factors were selected for further consideration.

Because many items met these criteria, further item selection was based on diversity of content, applicability to different types of trauma, moderate correlation with other items, and size of correlation with the PDS. Twenty-one items that exemplified the initial concepts about Negative Cognitions About Self (general negative view of self, permanent change, alienation, hopelessness, self-trust, and negative interpretation of symptoms) were selected to represent the first factor. Seven items that exemplified the concept of Negative Cognitions About the World (unsafe world and mistrust of other people) were selected to represent the second factor. Five items that represented the Self-Blame concept were selected to represent the third factor. Thus, the final inventory contained 33 items. The inventory can be found in Appendix A; a scoring key is found in Appendix B.

To make the scores of the three PTCI scales comparable despite the different number of items, scale scores were computed as the mean item response for that scale. The three PTCI scales correlated moderately to strongly with each other (all $ps < .001$): Negative Cognitions About Self and Negative Cognitions About the World, Spearman P = .75; Negative Cognitions About Self and Self-

Blame, P = .68; Negative Cognitions About the World and Self-Blame, P = .57. The correlations with the Total score were P = .95, .86, and .75 for Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame, respectively.

Stability of the Factor Structure of the Posttraumatic Cognitions Inventory

The factor structure of the 33 PTCI items was tested in three samples. First, the traumatized sample was randomly split into two samples and principal-components analysis with oblimin rotation was calculated for both subsamples separately. Second, a similar analysis was run for the nontraumatized sample. As shown in Table 2, all items had high loadings on the factor to which they had been assigned. Very few showed substantial correlations on other factors.

To further examine the replicability of the three PTCI scales between the two halves of the split traumatized group, we calculated the factor congruence coefficient for each factor. Coefficient values for Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame were .98, .99, and .99, respectively, indicating that the factors replicated very well.

Internal Consistency

Cronbach's alphas for the three PTCI scales and total score were as follows: total score, α = .97; Negative Cognitions About Self, α = .97; Negative Cognitions About the World, α = .88; Self-Blame, α = .86.

Cronbach's alphas for the PBRS scales were Self, α = .90; Others, α = .90; Undoing, α = .57; Safety, α = .76; Trust, α =

Table 2
Factor Loadings of Posttraumatic Cognitions Inventory Items for Split Sample of Trauma Survivors and for Participants Without History of Trauma

	Factor 1	Factor 2	Factor 3
Item	TS1/TS2/NTS	TS1/TS2/NTS	TS1/TS2/NTS
Nothing good can happen to me anymore.	.74/.76/.74		
My life has been destroyed by the trauma.	.92/.79/.83		
I have no future.	.81/.93/.77		
I am a weak person.	.80/.55/.57		
I can't stop bad things from happening to me.	.60/.76/.32		
I have permanently changed for the worse.	.93/.84/.58		
My reactions since the event show that I am a lousy coper.	.93/.69/.73		
If I think about the event, I will not be able to handle it.	.72/.71/.47		
I will never be able to feel normal emotions again.	.87/.76/.92		
I feel like an object, not a person.	.73/.90/—		
I can't deal with even the slightest upset.	.85/.89/.66		
I can't rely on myself.	.77/.74/.76		
My reactions since the event mean that I am going crazy.	.68/.87/.72		
I used to be a happy person but now I am always miserable.	.75/.76/.70		
I feel dead inside.	.81/.77/.76		
I can't trust that I will do the right thing.	.54/.66/.47		
I feel like I don't know myself anymore.	.79/.71/.75		
There is something wrong with me as a person.	.68/.56/.47		
I am inadequate.	.77/.74/.76		
I feel isolated and set apart from others.	.45/.76/.63		
I will not be able to control my anger and will do something terrible.	.75/.67/.74		
I have to be especially careful because you never know what can happen next.		.68/.78/.68	
People are not what they seem.		.77/.73/.65	
The world is a dangerous place.		.75/.65/.77	
You can never know who will harm you.		.78/.72/.66	
People can't be trusted.		.80/.64/.72	
I have to be on guard all the time.		.65/.59/.68	
I can't rely on other people.		.50/.64/.41	
The event happened because of the way I acted.			.79/.83/.80
There is something about me that made the event happen.			.81/.64/.80
The event happened to me because of the sort of person I am.			.73/.71/.78
Someone else would not have gotten into this situation.			.56/.53/.65
Somebody else would have stopped the event from happening.			.59/.53/.62

Note. Only factor loadings of .30 or greater are listed; Dash represents loading less than .30. TS1 = Trauma survivors sample 1; TS2 = Trauma survivors sample 2; NTS = Nontrauma survivors.

.84; Power, α = .69; Esteem, α = .85; Intimacy, α = .72; and Self-Blame, α = .61.

Cronbach's alphas for the WAS scales were Justice, α = .90; Benevolence of People, α = .95; Randomness, α = .91; Benevolence of the World, α = .96; Self-Worth, α = .95; Controllability, α = .92; and Self-Controllability, α = .97.

Test–Retest Reliability

Spearman Rho correlations were calculated to examine the temporal stability of the PTCI. For the 1-week retest interval of the MCP Hahnemann sample, the test–retest reliabilities were as follows: total score, P = .74; Negative Cognitions About Self, P = .75; Negative Cognitions About the World, P = .89; and Self-Blame, P = .89.

For the 3-week retest interval of the Oxford sample, the test–retest reliabilities were as follows: total score, P = .85; Negative Cognitions About Self, P = .86; Negative Cognitions About the World, P = .81; and Self-Blame, P = .80.

Convergent Validity

To examine the convergent validity of the PTCI, we calculated Spearman correlations between the PTCI scores and the scores of the two other scales that measure trauma-related cognitions, the PBRS and WAS. We hypothesized that there would be high correlations between the PTCI subscales and the corresponding subscales of the PBRS and WAS. The PTCI Negative Thoughts About Self scale was expected to correlate with the PBRS Self scale and with the WAS Self-Worth scale. The PTCI Negative Thoughts About the World scale was expected to correlate with the PBRS Safety and Others scales, and with the WAS Benevolence of World and Benevolence of People Scales. The PTCI Self-Blame scale was expected to correlate with the PBRS Self-Blame scale. The PTCI total score was expected to correlate with the PBRS summary scales Self and Others. The correlations between the PTCI, PBRS, and WAS are shown in Table 3.

Inspection of the pattern of correlations mostly supports our hypotheses. The PTCI Negative Cognitions About Self scale showed high correlations with the Self scale of the PBRS (P = .85) and with the Self-Worth scale of the WAS (P = .60). The PTCI Negative Cognitions About the World scale showed high correlations with the PBRS scales Others (P = .64) and Safety (P = .65) but unexpectedly did not correlate highly with the relevant WAS scales. The PTCI Self-Blame scale correlated only moderately with the PBRS Self-Blame scale (P = .50). The PTCI total score correlated highly with the PBRS scales Self (P = .74) and Others (P = 72). In general, the PTCI seemed more closely related to the PBRS than to the WAS: Of the 36 correlations between the PTCI and the PBRS scales, 29 were .50 and above; in contrast, only 2 of the 32 correlations between the PTCI and the WAS scales reached this criterion.

To examine the hypothesized relationship between cognitions and post-trauma psychopathology, Spearman correlations between the PTCI, PBRS, and WAS scales and the PDS, BDI, and STAI were computed. They are presented in Table 4.

Table 3
Spearman Correlations Between the Posttraumatic Cognitions Inventory (PTCI), Personal Beliefs and Reactions Scale (PBRS), and World Assumptions Scale (WAS) for Participants Who Experienced a Traumatic Event

	PTCI			
Measure	Neg. Self	Neg. World	Self-Blame	Total score
PBRS				
Self	−.85**	−.58**	−.60**	−.74**
Others	−.73**	−.64*	−.57**	−.72**
Safety	−.67**	−.65**	−.45**	−.67**
Undoing	−.54**	−.46**	−.43**	−.59**
Trust	−.78**	−.61**	−.61**	−.71**
Power	−.71**	−.48*	−.53**	−.64**
Esteem	−.79**	−.58*	−.56**	−.71**
Intimacy	−.78**	−.57**	−.56**	−.70**
Self-Blame	−.24**	−.21*	−.50**	−.20**
WAS				
Justice	.09	.04	.13	−.07
Benevolence of People	−.21*	−.29**	−.16*	−.34**
Randomness	.09	.05	.04	.08
Benevolence of World	−.29**	−.22**	−.18*	−.31**
Self-Worth	−.60**	−.36*	−.48**	−.51**
Luck	−.37**	−.27**	−.25**	−.39**
Controllability	−.03	.06	.15*	−.02
Self-Controllability	−.31**	−.15*	−.25**	−.25**

Note. For the PTCI, higher ratings indicate greater endorsement of pathological cognitions. For the PBRS, lower ratings indicate greater endorsement of pathological cognitions. For the WAS, higher ratings indicate greater endorsement of belief. Neg. Self = Negative Cognitions About Self; Neg. World = Negative Cognitions About the World.
* $p < .05$. ** $p < .001$.

Table 4
Spearman Correlations Between the PTCI, PBRS, and WAS Subscales With the PDS, BDI, and STAI Among Trauma Survivors

Measure	PDS	BDI	STAI state	STAI trait
PTCI				
Neg. Self	.78**	.75**	.70**	.77**
Neg. World	.69**	.64**	.46**	.48**
Self-Blame	.57**	.57**	.44**	.47**
Total score	.79**	.75**	.70**	.75**
PBRS				
Self	−.68**	−.78**	−.71**	−.79**
Others	−.61**	−.69**	−.68**	−.69**
Safety	−.58**	−.65**	−.65**	−.65**
Undoing	−.42**	−.48**	−.48**	−.53**
Trust	−.61**	−.72**	−.65**	−.70**
Power	−.56**	−.60**	−.63**	−.69**
Esteem	−.60**	−.71**	−.65**	−.71**
Intimacy	−.66**	−.74**	−.69**	−.72**
Self-Blame	−.21*	−.23**	−.14	−.19*
WAS				
Justice	−.01	−.05	−.13*	−.14
Benevolence of People	−.13	−.16**	−.37**	−.40**
Randomness	−.02	.05	.13	.08
Benevolence of World	−.19*	−.24**	−.47**	−.50**
Self-Worth	−.40**	−.54**	−.62**	−.66**
Luck	−.25**	−.34**	−.42**	−.41**
Controllability	−.04	−.06	−.20*	−.20*
Self-Controllability	−.16*	−.21*	−.36**	−.38**

Note. For the Posttraumatic Cognitions Inventory (PTCI), higher ratings indicate greater endorsement of pathological cognitions. For the Personal Beliefs and Reactions Scale (PBRS), lower ratings indicate greater endorsement of pathological cognitions. For the World Assumptions Scale (WAS), higher ratings indicate greater endorsement of belief. PDS = Posttraumatic Stress Diagnostic Scale; BDI = Beck Depression Inventory; STAI = State–Trait Anxiety Inventory; Neg. Self = Negative Cognitions About Self; Neg. World = Negative Cognitions About the World.
* $p < .05$. ** $p < .001$.

All three PTCI scales, as well as the total score, correlated substantially with PTSD severity, depression, and general anxiety. To examine whether there is a relationship between the PTCI and PTSD severity when variation in depression is controlled, we calculated partial correlations between the PTCI scales and the PDS, partialling out BDI scores. The correlations remained significant, $r = .34, .38, .21$, and $.44$, $ps < .001$, for Negative Cognitions About Self, Negative Cognitions About the World, Self-Blame, and total, respectively.

To examine whether there is a relationship between the PTCI and PTSD severity when variation in anxiety is controlled, we calculated partial correlations between the PTCI scales and the PDS, partialling out STAI state scores. The correlations remained significant, $r = .59, .51, .39$, and $.64$, $ps < .001$, for Negative Cognitions About Self, Negative Cognitions About the World, Self-Blame, and total, respectively.

The PBRS scales correlated moderately to highly with measures of psychopathology. The PBRS scales Self and Others correlated more strongly with the BDI and STAI trait scores than with the PDS ($ts > 2.30$, $p = .01$). The other subscales showed a similar pattern. Although the PBRS Self scale showed a high correlation with the PDS, this correlation was lower than that between the PDS and the PTCI Negative Cognitions About Self scale ($t = 5.79$, $p < .001$). Of the WAS scales, the Benevolence of People, Benevolence of the World, Self-Worth, Luck, and Self-Controllability scales correlated significantly with the psychopathology measures, but in general the correlations were low.

Discriminative Validity: Differences Between Groups

To further examine the hypothesized relationship between cognitions and post-trauma psychopathology, we compared traumatized individuals with PTSD, traumatized individuals without PTSD, and nontraumatized individuals. To this end, Kruskal–Wallis tests were performed for each of the scales. Post hoc analyses of significant Kruskal–Wallis tests using Mann–Whitney U tests were conducted. Group medians and standard deviations for the PTCI, PBRS, and WAS are presented in Table 5.

Posttraumatic Cognitions Inventory. The groups differed significantly on all PTCI scales: total score, $\chi^2(2, N = 507) = 242.79$, $p < .001$; Negative Cognitions About Self, $\chi^2(2, N = 507) = 247.62$, $p < .001$; Negative Cognitions About the World, $\chi^2(2, N = 507) = 200.34$, $p < .001$; and Self-Blame, $\chi^2(2, N = 501) = 120.53$, $p < .001$. Mann-Whitney U tests indicated traumatized individuals with PTSD scored higher on all PTCI scales than either of the other groups, which did not differ from one another.

Because the groups differed in age, sex, race, and the proportion of participants with sexual assault versus other traumas (see Table 1), the analyses were repeated, using analysis of covariance, controlling for these variables (White vs. non-White was used as the covariate for race). The group differences remained significant for all PTCI scales. The covariate did not significantly affect the group differences for the scales Negative Cognitions About Self and Self-Blame. For Negative Cognitions About the World, age, $t(248) = 2.94$, $p < .01$, and race, $t(248) = 4.42$, $p < .001$, showed

Table 5
Median and Standard Deviation PTCI, PBRS, and WAS Scale Scores Between Nontraumatized, Traumatized, and PTSD Participants

	Participant group					
	No trauma		Trauma with no PTSD		PTSD	
Measure	*Mdn*	*SD*	*Mdn*	*SD*	*Mdn*	*SD*
PTCI						
Neg. Self	1.08_a	0.76	1.05_a	0.63	3.60_b	1.48
Neg. World	2.07_a	1.43	2.43_a	1.42	5.00_b	1.25
Self-Blame	1.00_a	1.45	1.00_a	1.02	3.20_b	1.74
Total score	45.50_a	34.76	49.00_a	23.52	133.00_b	44.17
PBRS						
Self	3.68_a	1.19	3.39_a	1.16	3.10_b	0.91
Others	3.75_a	1.17	3.40_a	1.16	3.20_b	0.86
Safety	3.60_a	1.24	3.25_a	1.17	3.00_b	1.10
Undoing	4.75_a	1.32	5.25_a	1.35	3.00_b	1.53
Trust	3.75_a	1.34	3.50_a	1.32	3.00_b	1.06
Power	3.69_a	1.21	3.50_a	1.14	3.13_b	0.86
Esteem	3.78_a	1.34	3.62_a	1.31	3.25_b	1.07
Intimacy	3.75_a	1.18	3.62_a	1.18	3.00_b	0.93
Self-Blame	3.83	1.22	4.00_a	1.04	3.67_b	1.46
WAS						
Justice	13.00	4.14	14.00_a	4.21	13.00_b	4.74
Benevolence of People	16.00	3.56	16.00	3.52	15.00	3.79
Randomness	15.00	4.29	16.00	4.77	15.00	4.48
Benevolence of World	18.00_a	4.43	18.00_a	5.50	16.00_b	4.70
Self-Worth	16.00_a	6.14	13.00_b	6.04	14.00_b	5.22
Luck	17.00_a	4.94	17.00_a	8.54	15.00_b	5.26
Controllability	15.00	4.20	15.00	9.30	14.00	4.60
Self-Controllability	19.00_a	3.66	19.00_a	8.25	17.00_b	4.75

Note. Within each row, subscripts $_a$ and $_b$ are significantly different ($p < .05$). For the Posttraumatic Cognitions Inventory (PTCI), higher ratings indicate greater endorsement of pathological cognitions. For the Personal Beliefs and Reactions Scale (PBRS), lower ratings indicate greater endorsement of pathological cognitions. For the World Assumptions Scale (WAS), higher ratings indicate greater endorsement of belief. PTSD = posttraumatic stress disorder. Neg. Self = Negative Cognitions About Self; Neg. World = Negative Cognitions About the World.

significant regression effects, with older participants and non-White (particularly African American) participants scoring higher on this scale.

To further explore the ability of the PTCI to discriminate between individuals with and without PTSD, we computed effect sizes (Cohen's *d;* Cohen, 1988). For the comparison of traumatized individuals with and without PTSD, effect sizes were 1.89, 1.70, 1.24, and 2.05 for the scales Negative Cognitions About Self, Negative Cognitions About the World, Self-Blame, and total, respectively. For the comparison of individuals with PTSD and nontraumatized individuals, effect sizes were 1.75, 1.84, 0.90, and 1.88, respectively.

To examine whether the ability of the PTCI to discriminate between individuals with and without PTSD is the result of differences in depression, we identified a subgroup of individuals with PTSD and low depression (BDI < 9) and compared them with traumatized individuals without PTSD, using Mann-Whitney *U* tests. The two groups did not differ significantly on the BDI. On all four PTCI scales, individuals with PTSD had higher scores, all *ps* < .001, Negative Cognitions About Self, *Mdn* = 1.60 (*SD* = 1.18) versus 1.05 (0.63); Negative Cognitions About the World, *Mdn* = 3.86 (1.41) versus 2.43 (1.42); Self-Blame, *Mdn* = 1.60 (1.37) versus 1.00 (1.02); and total score, *Mdn* = 80.00 (31.37) versus 49.00 (23.52).

To examine whether the ability of the PTCI to discriminate between individuals with and without PTSD is attributable to differences in anxiety, we identified a subgroup of individuals with PTSD and low anxiety (STAI state < 42) and compared them with traumatized individuals without PTSD using Mann-Whitney *U* tests. The two groups did not differ significantly on the STAI. On all four PTCI scales, individuals with PTSD had higher scores, all *ps* < .001, Negative Cognitions About Self, *Mdn* = 2.28 (*SD* = 1.27) versus 1.05 (0.63); Negative Cognitions About the World, *Mdn* = 4.43 (1.40) versus 2.43 (1.42); Self-Blame, *Mdn* = 2.88 (1.73) versus 1.00 (1.02); and total score, *Mdn* = 90.50 (37.30) versus 49.00 (23.52).

Mann-Whitney *U* tests were used to determine whether the PTCI scale scores differed as a function of type of trauma. Individuals who reported assault versus accident (the two most common types of trauma) differed significantly on all PTCI scales: total score, $z = -4.58$, $p < .0001$; Negative Cognitions About Self, $z = -3.06$, $p < .01$; Negative Cognitions About the World, $z = -4.78$, $p < .0001$; Self-Blame, $z = -5.72$, $p < .0001$. On all scales, assault victims had higher scores than accident survivors. The differences in Negative Cognitions About the World and Self-Blame remained significant when PDS scores were controlled for with analysis of covariance (*ps* < .01). The differences on the

Negative Cognitions About Self scale and the Total Score were not significant after controlling for PDS.

Personal Beliefs and Reactions Scale. The groups differed significantly on all PBRS scales: Self, $\chi^2(2, N = 488) = 33.81$, $p < .001$; Others, $\chi^2(2, N = 484) = 27.00, p < .001$; Trust, $\chi^2(2, N = 490) = 31.02, p < .001$; Safety, $\chi^2(2, N = 492) = 28.60, p < .001$; Power, $\chi^2(2, N = 489) = 32.27$, $p < .001$; Esteem, $\chi^2(2, N = 495) = 22.87, p < .001$; Intimacy, $\chi^2(2, N = 495) = 41.70$, $p < .001$; Self-Blame, $\chi^2(2, N = 483) = 9.00$, $p < .01$; and Undoing, $\chi^2(2, N = 492) = 119.28$, $p < .001$. Individuals with PTSD differed from both nontraumatized and traumatized individuals without PTSD on all scales with the exception of the Self-Blame scale, which did not distinguish between nontraumatized individuals and individuals with PTSD. There were no significant differences between nontraumatized individuals and individuals with trauma but no PTSD. Individuals who reported assault versus accident did not differ significantly on any PBRS scales, $p > .05$.

World Assumptions Scale. Of the eight WAS scales, only four differed significantly between groups: Benevolence of the World, $\chi^2(2, N = 478) = 12.17$, $p < .01$; Self-Worth, $\chi^2(2, N = 478) = 38.71, p < .001$; Luck, $\chi^2(2, N = 473) = 18.44, p < .001$; and Self-Controllability, $\chi^2(2, N = 479) = 13.10, p < .001$. Of the significant scales, all but Self-Worth differentiated between individuals with and without PTSD. Self-Worth differentiated between individuals with no trauma and those with trauma but no PTSD.

Individuals who reported assault versus accident differed significantly on the Luck ($z = -3.31, p < .001$), Controllability ($z = -1.96$, $p < .05$), and Self-Controllability ($z = -2.42$, $p < .02$) scales, with accident victims reporting stronger belief in these factors.

Identification of PTSD Within Traumatized Participants

Discriminant function analyses were performed to test how accurately individuals with PTSD could be identified within the overall sample of trauma survivors. The three PTCI scales classified 86% of the traumatized individuals correctly into those with and without PTSD, Wilks's $\Lambda = .47$, $\chi^2(3, N = 355) = 259.07$, $p < .0001$. Sensitivity was .78 and specificity was .93.

The seven PBRS scales, with the exception of the summary scales Self and Others, classified 84% of the traumatized individuals correctly into those with and without PTSD, Wilks's $\Lambda = .60$, $\chi^2(7, N = 335) = 84.47$, $p < .0001$. Sensitivity was .91 and specificity was .67. The PBRS additional scales Self and Other classified 79% correctly, Wilks's $\Lambda = .65$, $\chi^2(2, N = 335) = 23.67$, $p < .0001$. Sensitivity was .86 and specificity was .62.

The eight WAS scales classified 72% of the traumatized individuals correctly into those with and without PTSD, Wilks's $\Lambda = .85$, χ^2 8, $N = 320) = 30.98$, $p = .0001$. Sensitivity was .91 and specificity was .26.

Discussion

This study examined the reliability and validity of a new measure of cognitions that are hypothesized to underlie posttraumatic psychopathology. The initial pool of 110 items, which was conceptually derived, yielded three factors: Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame. The factors replicated well in different subsamples. Internal consistencies and test–retest reliabilities of the total scale and the three subscales were very good. Construct validity of the scales was supported by moderate to high correlations with the corresponding PBRS scales. All PTCI scales predicted PTSD severity, depression, and general anxiety in traumatized individuals. The PTCI discriminated well between traumatized individuals with PTSD and those without PTSD. The latter did not differ from nontraumatized individuals. The ability of the PTCI to discriminate between traumatized individuals with and without PTSD was maintained even after controlling for depression and state anxiety, and for age, sex, race, and type of assault. The results, therefore, show that the cognitions assessed with the PTCI have a specific association with PTSD. Interestingly, victims of assault viewed the world and themselves as more negative than did accident survivors, and studies show that assault has more psychological impact than accidents (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Thus, the group differences underscore the relationship between the PTCI and PTSD.

The concepts of negative cognitions about the self and the world were also assessed by two other measures of post-trauma cognitions (WAS, PBRS), although only the PTCI included cognitions about the sequelae of a trauma. Because of the overlap among the three scales, it was possible to compare the performance of the PTCI to these measures. The WAS had very good internal consistencies, but its correlations with measures of psychopathology were low to moderate. Furthermore, none of its subscales showed substantial correlations with PTSD severity, probably because the WAS was developed to assess cognitions affected by trauma in general and was not specifically designed to measure cognitions associated with chronic PTSD. Our results suggest that the WAS scale is of limited use as a clinical instrument to measure cognitions associated with PTSD.

The five PBRS subscales showed lower internal consistencies than the PTCI scales. The two PBRS summary scales (Self and Other) had high internal consistency. Although a few changes in wording of items were made and a wider range of traumatized individuals were studied, all the internal consistencies found in the present sample for PBRS are comparable to the findings of other studies using this measure (Mechanic & Resick, 1993; Resick & Schnicke, 1993; Resick et al., 1991; Wenninger & Ehlers, 1998). As in previous studies, the PBRS scales correlated moderately to highly with measures of psychopathology, with the exception of low correlations for the Self-Blame scale. Thus, the results support the validity of the PBRS for a wider range of trauma than previously investigated.

The study identified two main differences between the PTCI and the PBRS. The PTCI showed good sensitivity and a very high specificity in identifying individuals with and without PTSD in the traumatized sample, whereas the PBRS showed high sensitivity but low specificity. Thus, the PBRS yields more false positives of PTSD among trauma survivors than does the PTCI. Furthermore, the PTCI scale Negative Cognitions About Self showed a higher correlation with PTSD severity than did the corresponding PBRS scale. In contrast to the PTCI scales, the PBRS Self and Others scales showed higher correlations with the BDI and STAI than with the PDS. Thus, the results of this study suggest that the PTCI outperforms the PBRS as a specific measure of cognitions associated with PTSD. The PBRS seems to address cognitions related to a wide range of anxiety and depressive symptoms in traumatized individuals. Although we think it is unlikely, we cannot rule out

that the changes in wording of some items contributed to this pattern of results.

The high specificity of the PTCI in identifying PTSD cases and its high correlation with PTSD severity suggest that the scale may be useful as a clinical assessment tool for patients with PTSD. Moreover, the PTCI may be used to identify the erroneous cognitions that are targeted in cognitive–behavioral treatment (cf. Foa & Rothbaum, 1998).

Although the present study involved a large sample of traumatized individuals, the pattern of results needs replication because it is conceivable that the item selection procedure optimized the results for the PTCI. The high internal consistencies of the three subscales suggest that the scales, especially the Negative Cognition About the Self scale, can be shortened without compromising the psychometric properties of the scales. Such shortening may be useful for research purposes, such as for predictive studies of PTSD. However, for clinical purposes, such as planning cognitive intervention or assessment of treatment processes, the wide range of items may prove useful.

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Appendix A

Posttraumatic Cognitions Inventory (PTCI)

ID: _____ INITIALS: _____ DATE: _____

We are interested in the kind of thoughts which you may have had after a traumatic experience. Below are a number of statements that may or may not be representative of your thinking.

Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement.

People react to traumatic events in many different ways. There are no right or wrong answers to these statements.

1 *Totally disagree*
2 *Disagree very much*
3 *Disagree slightly*
4 *Neutral*
5 *Agree slightly*
6 *Agree very much*
7 *Totally agree*

1. The event happened because of the way I acted.
2. I can't trust that I will do the right thing.
3. I am a weak person.
4. I will not be able to control my anger and will do something terrible.
5. I can't deal with even the slightest upset.
6. I used to be a happy person but now I am always miserable.
7. People can't be trusted.
8. I have to be on guard all the time.
9. I feel dead inside.
10. You can never know who will harm you.
11. I have to be especially careful because you never know what can happen next.
12. I am inadequate.
13. I will not be able to control my emotions, and something terrible will happen.
14. If I think about the event, I will not be able to handle it.
15. The event happened to me because of the sort of person I am.
16. My reactions since the event mean that I am going crazy.
17. I will never be able to feel normal emotions again.
18. The world is a dangerous place.
19. Somebody else would have stopped the event from happening.
20. I have permanently changed for the worse.
21. I feel like an object, not like a person.
22. Somebody else would not have gotten into this situation.
23. I can't rely on other people.
24. I feel isolated and set apart from others.
25. I have no future.
26. I can't stop bad things from happening to me.
27. People are not what they seem.
28. My life has been destroyed by the trauma.
29. There is something wrong with me as a person.
30. My reactions since the event show that I am a lousy coper.
31. There is something about me that made the event happen.
32. I will not be able to tolerate my thoughts about the event, and I will fall apart.
33. I feel like I don't know myself anymore.
34. You never know when something terrible will happen.
35. I can't rely on myself.
36. Nothing good can happen to me anymore.

(*Appendixes continue*)

Appendix B

Scoring Key for the Posttraumatic Cognitions Inventory (PTCI)

Negative Cognitions About Self	Negative Cognitions About the World	Self-Blame
2 _____	7 _____	1 _____
3 _____	8 _____	15 _____
4 _____	10 _____	19 _____
5 _____	11 _____	22 _____
6 _____	18 _____	31 _____
9 _____	23 _____	
12 _____	27 _____	Sum C _____
14 _____		
16 _____	Sum B _____	÷ 5 = _____ (Score)
17 _____		
20 _____	÷ 7 = _____ (Score)	
21 _____		
24 _____		Total Score
25 _____		
26 _____		Sum A _____
28 _____		Sum B _____
29 _____		Sum C _____
30 _____		
33 _____		Sum of A, B, C
35 _____		_____ (Score)
36 _____		
Sum A _____		
÷ 21 = _____ (Score)		

Note. Items 13, 32, and 34 are experimental and are therefore not included in subscales.

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