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# The Attachment Characteristics of Combat Veterans with PTSD

Edwin F. Renaud

Posttraumatic stress disorder (PTSD) from combat exposure has been found to have more disruptive effects on interpersonal and family functioning than trauma from other sources. Attachment theory and Foa's cognitive-behavioral model of PTSD suggest pathways by which the symptoms of PTSD may contribute to social impairment. Forty-nine self-selecting male veterans with combat-related PTSD were administered the Experience of Close Relationships (ECR) Scale, the Posttraumatic Cognitions Inventory (PTCI), the Mississippi Scale for combat PTSD, and a demographic questionnaire to test for relationships between

attachment avoidance, attachment anxiety, cognitive distortions associated with PTSD, and PTSD symptom severity. Veterans were found to generally endorse avoidant attachment styles. Attachment avoidance and ambivalent attachment were associated with more PTSD symptoms. A hypothesis for the effects of PTSD symptoms on attachment characteristics, situating the findings within existing theory, is proposed.

**Keywords:** PTSD; attachment avoidance; attachment anxiety; hyperarousal; cognitive distortions; combat veterans

## Introduction

Combat veterans who suffer from posttraumatic stress disorder (PTSD) are prone to leading troubled interpersonal lives. PTSD resulting from combat exposure has been shown to have a more toxic effect on marital, family, and occupational functioning in comparison with trauma resulting from other experiences. Prigerson, Maciejewski, and Rosenheck (2001) found that veterans who identified combat as their most upsetting life event were more likely to be unemployed, divorced, and to have abused their spouse compared with those who had identified other forms of trauma as most upsetting. The intimate partner relationships of combat veterans with PTSD have also been found to be characterized by greater violence and struggles with emotional connectedness (Beckham, Feldman, Kirby, Hertzberg, & Moore, 1998; Riggs, Byrne, Weathers, & Litz, 1998). Female partners of male combat veterans with PTSD have been found to experience a number of PTSD-like symptoms such as depression, anxiety,

interpersonal hostility, and somatic complaints (Solomon et al., 1992).

There is evidence that the negative interpersonal effects of combat-related PTSD are not confined to the veterans themselves but also seep into the functioning of their intimate relationships and the families they create. Jordan et al. (1992) found that the families of male combat veterans with PTSD were at increased risk for family-based violence and child behavior problems. Studies conducted on the children of veterans with PTSD have found comparatively higher rates of depression and anxiety as well as higher levels of interpersonal aggression (Glenn et al., 2002; Harkness, 1993).

The impairment observed in the intimate relationships and family functioning of combat veterans with PTSD suggests that trauma symptoms have negative effects on the veteran's close social supports. However, the literature suggests a complex relationship between the veteran's social support both before and after combat exposure and their subsequent risk for developing PTSD. A meta-analysis by Brewin, Andrews, and Valentine (2000) supported previous findings that stressors such as childhood physical abuse are associated with an increased risk for PTSD. Yet they also found that the quality of a person's social support after experiencing

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a traumatic event influenced the risk as well. Brewin et al. (2000) found that a lack of social support was the strongest predictor of developing PTSD after a traumatic event. These findings were supported by a more recent meta-analysis conducted by Ozer, Best, Lipsey, and Weiss (2003). A factor analysis of the risks and protective factors associated with developing combat-related PTSD found that stable social support has a protective effect against the development of PTSD and that a history of prior trauma results in significantly higher risk (King, King, Foy, Keane, & Fairbank, 1999). For the male portion of King et al.'s (1999) sample, family instability prior to military service was associated with increased war zone stressors and negatively associated with post-war resilience and recovery variables. Increased war zone stressors and the absence of resiliency and recovery variables predicted the subsequent lack of availability of functional and structural social supports. The absence of these social supports, in turn, increased the likelihood of developing PTSD. The role of intact social support as a buffer against cumulative stressful events has been shown in civilian populations (Schumm, Briggs-Phillips, & Hobfoll, 2006). Taken together, the literature suggests that social support plays a role in mediating the risk of developing PTSD both before and after a traumatic experience.

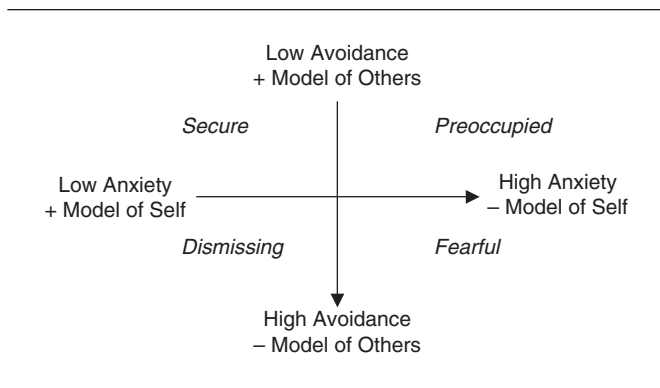
### **Attachment Theory and the Interpersonal Effects of Combat-Related PTSD**

Attachment theory (Bowlby, 1969, 1973, 1980) provides a framework that may be helpful in understanding the social impairment associated with combat-related PTSD. Although attachment theory was first described as a framework for understanding the development of early relationships and the formation of lasting patterns of emotional connection, recent interest in attachment has focused on its role in developing the capacities of emotional regulation and coping (Fonagy, Gyorgy, Jurist, & Target, 2003; Schore, 2003). PTSD is partially defined by a diminished threshold for psychological arousal (criterion D; American Psychiatric Association, 2000) and is characterized by difficulties in managing both fear and anger. Yet the difficulties with social isolation, anxiety, and anger that are frequently seen in combat veterans suggest that an understanding of the attachment characteristics of combat veterans with PTSD may be useful.

Bowlby (1973) stated that individual differences in attachment characteristics are mediated by internal working models of the self and of others, which develop through interactions with attachment figures over time. The internal working model of others reflects how a person experiences the support of attachment figures, whereas the working model of the self reflects the person's estimate of their ability to evoke support from others. Although these two constructs are sometimes operationalized separately, Bowlby viewed them as tightly bound in the development and expression of individual attachment styles.

One of the most familiar studies on attachment relationships is Ainsworth's "strange situation" study (Ainsworth, Blehar, Waters, & Wall, 1978). One of the outcomes of this study was the description of three attachment classifications: secure, anxious-ambivalent, and anxious-avoidant. Securely attached children are comfortable being emotionally close to others and have comparatively few problems with connectedness. Anxiously-ambivalently attached children express ambivalent attachment behavior, at times clinging and at times maintaining a worried distance. Anxious-avoidant children display wariness of interpersonal closeness. These classifications have often been shortened as secure, ambivalent, and avoidant.

Discriminate analysis of Ainsworth et al.'s (1978) findings showed that the use of two linear functions were best suited to classifying the child's behavior into one of their three attachment categories. One function reflected greater anxiety (crying, angry resistance to adults, less exploratory behavior) and the other, more avoidant behavior (less proximity seeking, more exploration, a lack of eye contact.) Other researchers have also observed these two dimensions in their findings (Griffin & Bartholomew, 1994). Bartholomew (1990) suggested that these two underlying dimensions in attachment measures could be conceptualized as reflecting internal working models of the self and others. Bartholomew and Horowitz (1991) proposed a two-dimensional model of attachment classification based on the axes of attachment avoidance and attachment anxiety. The four classifications resulting from this two-dimensional model are secure, preoccupied, fearful, and dismissing, reflecting the differing combinations of attachment avoidance and attachment anxiety (see Figure 1). Most of the attachment studies conducted during the past 15 years



**Figure 1.** The four classifications resulting from Bartholomew and Horowitz's two-dimensional model.

have used one of these two models of attachment classification.

Secure attachment has been shown to have a protective effect against the development of PTSD in children (McFarlane, 1988). In adults, secure attachment has been found to have an inverse relationship to measures of psychopathology under conditions of heightened physical threat (Mikulincer, Horesh, Eilati, & Kotler, 1999). Insecure attachment is associated with stressful experience in both clinical and nonclinical populations. Mickelson, Kessler, and Shaver (1997), reporting attachment data collected as part of the first National Comorbidity Survey (NCS), found that childhood physical abuse and serious neglect were associated with insecure attachment more strongly than meeting criteria for the diagnosis of PTSD. They found that using adaptations of Ainsworth's classification scheme, the self-reported attachment style distribution in the general population was 59% secure, 25% avoidant, and 11% ambivalent, with about 5% unclassified for methodological reasons. A study conducted by Muller, Sicoli, and Lemieux (2000), using Griffin and Bartholomew's (1994) two-dimensional model of attachment classification, found that participants with a history of sexual abuse endorsed dismissive attachment at a rate of 42%, followed by secure at 24%, with the fearful and preoccupied styles at 21% and 12%, respectively. Dieperink, Leskela, Thuras, and Engdahl (2001) found in a sample of former prisoners of war, also using Griffin and Bartholomew's (1994) two-dimensional classification model, that 65% of their participants endorsed insecure attachment. Dieperink and her colleagues (2001) found that secure attachment was associated with lower reported PTSD symptom

severity. Finally, Dekel, Solomon, Ginzburg, and Neria (2004) found, using measures based on the three categories adapted from Hazan and Shaver (1987), that veterans with avoidant and anxious/ambivalent attachment had higher PTSD symptom scores. These findings support the hypothesis that secure attachments can have an ameliorative effect on PTSD symptom severity and that insecure attachment is associated with stressful experiences. Cognitive theories of PTSD, especially as articulated by Foa and Rothbaum (1997), suggest patterns of evaluating the self and the environment that bear a resemblance to internal working models and that may also inform the relationship between insecure attachment and PTSD.

### Foa and Rothbaum's Cognitive Theory of PTSD

Foa and Rothbaum (1997) state that posttraumatic symptoms result from the client's difficulty in processing the emotional experience of a stressful event and that this difficulty is a consequence of rigid views about the safety of the self and the environment both before and after the traumatic experience. When that rigidly constructed sense of safety is overwhelmed by traumatic experience, it results in the formation of an altered, yet equally rigid, set of cognitive distortions, which result in PTSD symptoms. The three cognitive distortions associated with PTSD are that the self is completely incompetent, that the world is completely dangerous, and that the self is to blame for the traumatic event. The distortion of complete incompetence reflects the victim's belief that one is flawed in a way that contributed to the trauma occurring. This cognitive distortion is similar to but distinct from the second distortion of blaming one's self for the traumatic event. Self-blame refers to the victims' belief that they are personally responsible, either by act or omission, for the traumatizing event. The last cognitive distortion is that the world is completely dangerous, reflecting the victim's belief that the world is fundamentally unsafe.

The cognitive distortions described by Foa and Rothbaum (1997) have broad similarities to attachment anxiety and avoidance. Although attachment anxiety and avoidance are conceptualized as operating on a more developmental and subconscious level than cognitive distortions brought about by traumatic events, both tap into ways of perceiving the

self and the external world that organize thought, feeling, and behavior. If people with PTSD experience themselves and the world in a negative way, we might expect to see this reflected in greater attachment anxiety and attachment avoidance. This would in turn predict that persons suffering from PTSD would tend to endorse fearful attachment, indicating greater attachment anxiety and avoidance, using Griffin and Bartholomew's (1994) classifications scheme.

This study seeks to expand on the existing literature by describing the attachment styles endorsed by combat veterans with PTSD as well as the qualities of internal and external perception that are conceptually associated with both attachment and PTSD. There are three hypotheses to be tested by the study. The first hypothesis is that negative cognitive distortions associated with PTSD are associated with elevated measures of attachment anxiety and avoidance. The second hypothesis is that elevated attachment anxiety and avoidance will in turn be associated with greater PTSD symptoms. The third hypothesis is that veterans with combat-related PTSD will tend to endorse fearful attachment, using Bartholomew and Horowitz's two-dimensional classification method.

Understanding the experience of combat veterans' attachments and whether there is any association between attachment anxiety or avoidance and PTSD symptoms may be useful in understanding how traumatized veterans experience emotional connectedness. This has implications for their use of social support, which as the review of the literature suggests, is an important mediator of resilience to traumatic stress. Testing for associations between negative cognitive distortions and attachment dimensions may lead to a better understanding of what, if any, relationship exists between these constructs of internal and external experience and, by extension, with PTSD symptoms.

## Method

### Participants

Participants were 49 male volunteers diagnosed with combat-related PTSD, recruited through postings at the West Haven branch of the VA Connecticut Healthcare System and the New Haven Vet Center in West Haven, Connecticut. They were primarily

**Table 1.** Sample Characteristics

	<i>n</i>	Percentage	Range	Mean	<i>SE</i>
Age	49	100	32-85	57.4	9.8
Financial support					
Employed	7	14.3			
Unemployed	42	85.7			
VA pension	34	69.4			
Ethnicity					
Caucasian	33	67.3			
African American	12	24.5			
Hispanic	1	2			
Native American	3	6.1			
Divorced during lifetime	27	55.1			
Number of divorces	31		1-4	1.61	.91
Longest marriage (years)	38		1-57	16.71	13.05
Married during lifetime	45	91.8			
Married currently	27	55.1			
Not married currently	21	42.9			
Currently in a relationship	33	67.3			
Age of first combat exposure			16-32	20.1	2.55
Branch					
Army	29	59.2			
Marine Corp	15	30.6			
Navy	4	8.2			
Air Force	1	2			
Enlistment					
Volunteer	36	73.5			
Draftee	13	26.5			
Service era					
World War II	5	10.2			
Vietnam	40	81.63			
Gulf War	4	8.16			

NOTE: *SE* = standard error.

Caucasian veterans of the United States Army and Marine Corp who volunteered for service during the Vietnam War and who are receiving compensation for PTSD from the Department of Veterans Affairs. They were generally married and divorced at least once and were either currently married or in a committed relationship. (See Table 1 for a summary of the participants' demographic characteristics.) Participants who presented with active substance abuse or psychosis were excluded from participation. Confirmation of combat exposure and PTSD diagnosis were obtained through registration material and clinical documentation at VA Connecticut after obtaining informed consent.

## Procedure and Measures

Participants completed four standardized measures and a demographic questionnaire in a single session and were paid for their time. They typically required an hour to complete all the measures. The demographic questionnaire was given to obtain information about gender, age, ethnicity, employment, VA compensation, and current relationship status. Information was also obtained about divorce history, developmental stressors such as physical and sexual abuse, parental divorce, and being reared by one's biological parents. Aspects of the participant's military history were also obtained, including branch of service, draftee or volunteer status, age of first combat exposure, and era of service.

The Mississippi Scale for combat-related PTSD (Keane, Caddell, & Taylor, 1988) was used to measure PTSD symptoms. This is a 35-item self-report instrument, using a 5-point Likert Scale, which is scored by adding the sum of individual items. The reported internal consistency of the scale is .94 (Cronbach's alpha), with an obtained value of .89 for this study sample. Test-retest reliability is .97.

The Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) was used to measure the cognitive distortions associated with PTSD. The PTCI has 36 items using a 7-point Likert Scale, composed of three subscales: 21 items measure thoughts of personal incompetence, 7 items measure negative thoughts about the world, and 5 items measure personal guilt. Scores are obtained by averaging the subscale items. Reported subscale reliabilities are .87, .85, and .83 (Cronbach's alpha) for personal incompetence, negative thoughts about the world, and personal guilt, respectively. Obtained reliability scores for the current sample (Cronbach's alpha) were .84, .82, and .76 for personal incompetence, negative thoughts about the world, and self-blame, respectively. Test-retest reliability (Spearman's rho) for the subscales have varied between .74 and .85 for negative cognitions about the self, .81 and .89 for negative cognitions about the world, and .80 and .89 for self-blame.

The first attachment instrument was the scale used by Hazan and Shaver (1987), which is composed of three paragraphs, each one describing a different attachment style based on Ainsworth's classification system (secure, avoidant, anxious/ambivalent). Participants were asked to rate their resemblance to these descriptions on a 4-point Likert

Scale for each paragraph and then to choose one paragraph that they felt described them best. The instrument has limitations, including a 70% test-retest stability (Baldwin & Fehr, 1995). However, it has been widely used for its brevity, face validity, and ease of administration. It has been used in both waves of the NCS (Kessler et al., 2004; Mickelson et al., 1997) and in longitudinal studies of attachment and combat-related trauma, such as Dekel et al. (2004) noted above. The use of this instrument allows for comparison of the findings of this study with those large-population studies.

The second attachment scale was the Experience of Close Relationships (ECR) Scale (Brennan, Clark, & Shaver, 1998). The ECR is composed of two 18-item subscales measuring attachment anxiety and attachment avoidance, using a 7-point Likert Scale. Subscale scores are obtained by summing and computing the mean. These subscale scores can be used independently or to calculate discrete attachment classification using Bartholomew's two-dimensional classification scheme. The two subscales have reported reliabilities (Cronbach's alpha) of .91 and .94 for anxiety and avoidance, respectively. For this sample, the obtained reliability scores (Cronbach's alpha) were .93 and .91 for anxiety and avoidance, respectively. Test-retest coefficients range between .50 and .75, depending on the interval and the sample (Mikulincer & Shaver, 2007).

## Instrument Correlation, Distribution Characteristics, and the Management of Missing Values

Table 2 describes the distribution characteristics and correlations obtained for the instruments during the study. Distribution analysis indicates that the ECR subscales were the most clustered, whereas the ECR avoidance subscale had the most normal, if negatively skewed, distribution of the measures. Correlations among the PTCI subscales and the Mississippi Scale were moderate and generally significant. Attachment avoidance had a more robust and statistically significant association with the PTCI subscales and the Mississippi than attachment anxiety. There were 31 missing values in the data set for the scale measures. Three participants' measures, comprising two Mississippi scales and one ECR scale, accounted for 22 of the 31 missing values and were removed from the analysis. Mean imputation was used for the

**Table 2.** Means (*M*), Standard Deviations (*SD*), Distribution Analysis, Correlations, and Reliability

Instrument or Subscale	<i>n</i>	<i>M</i>	<i>SD</i>	Range	Skew	Kurtosis	1	2	3	4	5	6
1. Mississippi Scale	47	126.56	16.19	86-155	-0.324	-0.289						
2. ECR anxiety	48	4.30	1.35	1.28-6.11	-0.429	-.0924	.31*					
3. ECR avoidance	48	4.72	1.18	2.33-6.78	-0.162	-0.876	.60**	.07				
4. PTCI incompetence	49	4.37	1.44	1.48-9.86	1.069	3.152	.74**	.36**	.52**			
5. PTCI world dangerous	49	5.58	1.00	3.14-7.0	-0.812	0.036	.60**	.08	.53**	.52**		
6. PTCI self-blame	49	3.29	1.44	1.0-6.6	0.564	-0.265	.46**	.38**	.26*	.58**	.33**	

NOTE: Standard error for skewness (all measures) is .34. Standard error for kurtosis (all measures) is .66. ECR = Experience of Close Relationships; PTCI = Posttraumatic Cognitions Inventory.

\* $p < .05$  (one-tailed). \*\* $p < .01$  (one-tailed).

values for the remaining 9 missing data points for purposes of tabulating scale scores.

### Statistical Methods

One-way ANOVA was used to test for relationships between demographic characteristics and scale measures. Regression analysis was performed on all scale measures found to have statistically significant associations to determine the contribution of the demographic variables and was also performed to determine the contribution of PTCI subscale scores to ECR subscale scores measuring attachment anxiety and avoidance. Regression analysis was then performed to determine the contribution of the ECR subscales for attachment anxiety and avoidance to the Mississippi Scale score.

One-way ANOVA was performed using the obtained attachment styles from the ECR and the Hazan and Shaver Scale as independent variables and the Mississippi Scale score as the dependent variable. Paired comparisons were performed to identify significant areas of difference between the classification systems of both attachment measures using the test of least significant difference.

The chi-square test was used to compare the distributive profile of attachment style classifications in the veteran sample against a normative sample. Because attachment styles are not evenly distributed in the general population, expected values for the comparison were derived from the largest normative data sets available for each instrument at the time. In the case of the Hazan and Shaver Scale, this was the NCS sample used in Mickelson et al. (1997). In the case of the ECR, this was the undergraduate sample reported in Brennan et al. (1998). The ECR normative findings were scaled to an *N* of 48, whereas the Hazan and Shaver norms were scaled to an *N* of 49.

## Results

### The Effects of Demographic Variables on Study Measures

Several demographic variables were found to have associations with one or more measures. The demographic variables with the most widely distributed association with study measures were a history of physical abuse and age. Advancing age was associated with lower scores on both affected measures. A reported history of physical abuse in childhood was associated with increased scores on all three affected measures. Greater age at the time of first combat exposure was associated with lower scores on the ECR avoidance subscale. The presence of a current partner (meant to capture the presence of a romantic attachment that might not be reflected by marital status) was associated with lower attachment avoidance. Feeling close to the men one served with in combat was associated with lower attachment anxiety. Divorce was associated with higher reported personal incompetence on the PTCI. Worry about one's family having enough money during childhood—asked because of the finding in Mickelson et al. (1997) that childhood poverty was associated with insecure attachment—was associated with lower perception of the world as being dangerous on the PTCI. Table 3 details the significant associations observed between the demographic variables and the study instruments, with associated regression analysis.

### The Contribution of Cognitive Distortions to Attachment Anxiety and Avoidance

The first hypothesis of the study was that the cognitive distortions associated with PTSD would be associated

**Table 3.** ANOVA for Association of Demographic Variables With Study Measures and Regression Analysis

Demographic Variable	df	F	Measure/Constant	B	SE B	$\beta$	95% CI	
							LB	UB
Physical abuse	1,45	6.8*	Mississippi Scale	122.29	2.79		116.66	127.91
			ECR anxiety	11.82	4.64	.35*	2.46	21.87
Were you close to the men in your unit?	1,45	5.09*	ECR avoidance	5.59	0.60	-.31*	4.38	6.80
			ECR avoidance	-1.08	0.48		-2.05	-0.07
Age at 1st combat exposure	7,40	3.83**	ECR avoidance	7.451	1.25		4.91	9.88
Current partner	1,45	6.29*		-0.12	0.06	-.27*	-0.25	-0.002
Physical abuse	1,46	6.50*		-0.66	0.33	-.26	-1.34	0.01
			PTCI incompetence	0.70	0.32	.28*	.05	1.36
Age	17,31	2.50*		7.396	1.17		5.02	9.76
			PTCI world dangerous	-0.05	0.01	-.40**	-0.09	-0.02
Divorce	1,43	4.35*		0.71	0.38	.24	-0.06	1.50
Age	17,31	2.01*		8.167	0.75		6.64	9.69
			PTCI self-blame	-0.04	0.01	-.40**	-0.06	-0.01
Worried about money	1,47	5.58*		-0.50	0.27	-.23	-1.04	0.04
			PTCI self-blame	2.927	0.24		2.43	3.42
Physical abuse	1,47	5.99*		0.99	0.40	.33*	0.17	1.81

NOTE: *df* = degrees of freedom; *B* = statistical beta; *SE* = standard error; *CI* = confidence interval; *LB* = lower bound; *UB* = upper bound; *ECR* = Experience of Close Relationships; *PTCI* = Posttraumatic Cognitions Inventory.

\* $p < .05$ . \*\* $p < .01$ .

with increased attachment avoidance and anxiety. The PTCI subscales for personal incompetence and self-blame were used as predictor variables for the ECR subscale measuring attachment anxiety, whereas the PTCI subscale measuring the distortion of the world being completely dangerous was used as a predictor variable for ECR subscale measuring attachment avoidance. The cognitive distortion of the world being dangerous was found to have a significant contribution to attachment avoidance. The cognitive distortions of personal incompetence and self-blame were not found to contribute to attachment anxiety (see Table 4).

### The Contribution of Attachment Anxiety and Avoidance to PTSD Symptoms

The ECR subscales for attachment anxiety and avoidance were used as predictor variables for the Mississippi Scale. Attachment anxiety and avoidance were both found to contribute to PTSD symptom severity; however, attachment avoidance was found to make a more robust contribution (see Table 5).

### Attachment Style and PTSD Symptom Levels

One-way ANOVA was performed using the four attachment categories described by Bartholomew

**Table 4.** Regression Analysis of the Contributions of Cognitive Distortions to Internal Working Models

Variable	<i>B</i>	<i>SE B</i>	$\beta$	95% CI	
				<i>LB</i>	<i>UB</i>
Attachment avoidance (constant)	1.21	0.82		-.43	2.87
World is dangerous	0.62	0.14	.53*	.33	.91
Attachment anxiety (constant)	2.65	0.59		1.46	3.84
Personal incompetence	0.19	0.15	.20	-.12	.50
Self-blame	0.24	0.15	.26	-.06	.57

NOTE: *B* = statistical beta; *SE* = standard error; *CI* = confidence interval; *LB* = lower bound; *UB* = upper bound.

\* $p < .01$ .

**Table 5.** Regression Analysis of the Contribution of Internal Working Models to PTSD Symptoms

Variable	<i>B</i>	<i>SE B</i>	$\beta$	95% CI	
				<i>LB</i>	<i>UB</i>
Mississippi Scale (Constant)	74.32	9.44		55.27	93.36
Attachment avoidance	8.05	1.58	.58**	4.85	11.24
Attachment anxiety	3.22	1.37	.27*	0.45	6.00

NOTE: PTSD = posttraumatic stress disorder; *B* = statistical beta; *SE* = standard error; *CI* = confidence interval; *LB* = lower bound; *UB* = upper bound.

\* $p < .05$ . \*\* $p < .01$ .

**Table 6.** Significant Associations in Least Significant Difference Paired Comparisons of Attachment Styles

Measure	i <sup>a</sup>	j	Mean Difference (i – j)	SE	95% CI	
					LB	UB
Hazan and Shaver	Secure	Ambivalent	–24.76*	11.09	–47.12	47.12
	Ambivalent	Secure	24.76*	11.09	–2.40	2.40
	Secure	Dismissing	–30.00*	10.86	–51.93	8.06
ECR		Fearful	–36.09*	10.32	–8.06	51.93
	Preoccupied	Fearful	–23.09*	8.56	–56.92	15.25
	Dismissing	Secure	30.00*	10.86	–15.25	56.92
	Fearful	Secure	36.09*	10.32	–40.36	5.81
		Preoccupied	23.09*	8.56	–5.81	40.36

NOTE: SE = standard error; CI = confidence interval; LB = lower bound; UB = upper bound; ECR = Experience of Close Relationships.

<sup>a</sup>i Refers to the attachment style being compared with the other available styles (j) to determine their difference.

\*\* $p < .01$ .

and Horowitz (1991) as independent variables and the Mississippi Scale as the dependent variable. Attachment avoidance was found to have a significant effect ( $F(3, 42) = 6.11, p \leq .01$ ) on Mississippi scores. The fearful group had the highest Mississippi score ( $N = 30$ , mean [ $M$ ] = 131.09, standard deviation [ $SD$ ] = 13.97), followed by dismissing ( $N = 11$ ,  $M = 125$ ,  $SD = 15.25$ ), then preoccupied ( $N = 3$ ,  $M = 108$ ,  $SD = 11$ ), and finally, secure ( $N = 2$ ,  $M = 95$ ,  $SD = 12.72$ ). One-way ANOVA was also performed using the Hazan and Shaver (1987) categories as independent variables and the Mississippi score as the dependent variable. Attachment style was not found to have a significant effect ( $F(2, 44) = 2.49, p = .09$ ) on Mississippi scores. In this case, the ambivalent group had the highest Mississippi score ( $N = 6$ ,  $M = 135.33$ ,  $SD = 15.02$ ), followed by avoidant ( $N = 38$ ,  $M = 126.44$ ,  $SD = 15.74$ ) and secure ( $N = 3$ ,  $M = 110.56$ ,  $SD = 16.33$ ).

Paired comparison of the three attachment styles for the Hazan and Shaver Scale found that the Mississippi scores of ambivalent veterans were significantly higher than those of secure veterans. For comparisons between the ECR styles, differences broke along the dimension of attachment avoidance. Veterans who reported secure and preoccupied attachment (characterized by low avoidance) had significantly lower Mississippi scores than the veterans reporting fearful and dismissing styles (characterized by high avoidance), yet these pairs did not significantly differ among themselves (see Table 6).

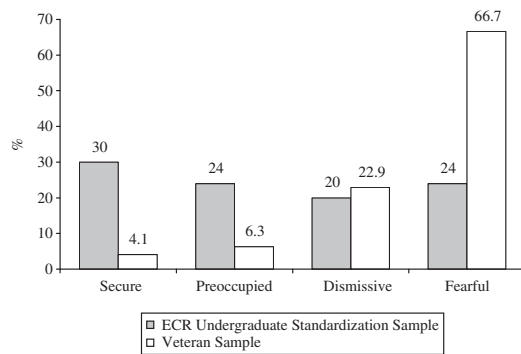
### Attachment Styles in the Veteran Sample With PTSD Compared With Normative Samples

There were significant differences in the distributive profile of attachment styles between the veteran sample and the NCS general population sample using the three-category model adapted by Hazan and Shaver (1987;  $\chi^2 = 222.33, p \leq .001, df = 2, N = 49$ ; see Figure 2). The distribution profile of attachment styles for the ECR also reflects high levels of insecure attachment (preoccupied, fearful, or dismissing) for the sample (see Figure 3). These samples were also found to be significantly different ( $\chi^2 = 70.21, p \leq .001, df = 3, N = 48$ ).

### Discussion

Most of the combat veterans who participated in this study endorsed insecure attachment styles, which were related to attachment avoidance. The ECR subscale for attachment avoidance had the most consistent and potent correlations of any variable in the data set. Nearly 90% of the participants endorsed attachment styles characterized by high avoidance using the Griffin and Bartholomew (1994) classification scheme. Nearly 80% of the sample endorsed avoidant attachment under the Hazan and Shaver (1987) classification scheme. Less than 10% of the sample endorsed secure attachment using either classification scheme.

Reported PTSD symptoms were significantly higher in the veterans who endorsed attachment

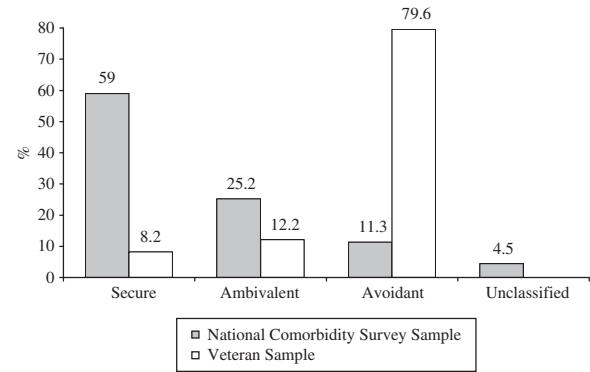


**Figure 2.** Comparison between veterans and the general population using Hazan and Shaver's instrument. NOTE: ECR, Experience of Close Relationships.

styles characterized by high avoidance (fearful and dismissing) using Griffin and Bartholomew's (1994) classification method. Yet, using Hazan and Shaver's (1987) classifications, the veterans who endorsed avoidant attachment did not report significantly different PTSD symptoms from those who endorsed either secure or ambivalent attachment, which differed significantly from each other. One possible explanation for this finding is that the large size of the avoidant group obscures its differences from either the secure or ambivalent group, which together constitute only 20% of the sample. However, it cannot be ruled out that an underlying quality of attachment ambivalence may worsen the subjective experience of PTSD symptoms or that the finding may be the result of some other variable.

Although it was predicted that cognitive distortions associated with PTSD would be associated with higher attachment anxiety and avoidance and that attachment avoidance and anxiety would in turn be predictive of PTSD symptom severity, this hypothesis was not entirely borne out by the data. Cognitive distortions of personal incompetence and self-blame did not significantly contribute to attachment anxiety in this sample, whereas the cognitive distortion of the world being completely dangerous contributed to attachment avoidance. Both attachment anxiety and avoidance were found to contribute to the severity of PTSD symptoms.

One possible explanation for the different contributions of the cognitive distortions to their putatively associated attachment dimension is the difference in scope between specific cognitive distortions and the broad schemas reflected in the concept of attachment anxiety and avoidance. Experiencing the world as dangerous creates a bias toward assessing the social



**Figure 3.** Comparison between veterans and the college sample using Experience of Close Relationships Scale.

environment as unresponsive or threatening. Although a sense of self-blame or incompetence may be components of a negative view of the self, this may not be sufficient to capture the broader schema of attachment anxiety. Attachment anxiety was found to contribute to PTSD symptom severity, yet the strength of its contribution was not as robust as that of attachment avoidance. Taken together with the weak effects of the self-directed cognitive distortions, the data suggest that perception of external threat rather than perceptions of aspects of the self may be more relevant to the relationship between PTSD symptoms and attachment avoidance. When considered with other findings, this may suggest a pathway by which PTSD symptoms and attachment avoidance interact.

### A Hypothesis of the Relationship Between PTSD Symptoms and Attachment Avoidance

PTSD is defined in part by alterations in the activation threshold and resolution interval of intense states of psychological arousal, anger, and fear. Schore (1994) functionally defines attachment as the state of reciprocal (although not necessarily equal) emotional regulation between two people, an exchange comprising complex verbal and nonverbal cues. In adulthood, intimate partners and social supports are seen as having a similar, if less direct, effect of providing emotional regulating influences.

Bowlby (1969) described early attachment behavior in ethological terms—a survival mechanism for eliciting and sustaining both emotional and material support from caretakers. Within the logic of attachment theory, the presence of others is inherently psychologically arousing. This is supported by

findings that infants and newborns show preferential attention to the human face and facial representations (Simion, Valenza, & Umiltà, 1998). Could this perceptual preference underlie, or contribute to, the effects of hyperarousal and social avoidance in trauma victims? Heightened attachment anxiety has been associated with greater vigilance to changes in facial cues (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006). Victims of interpersonal trauma have been shown to interpret ambiguous social information as a precursor to danger (Elwood, Williams, Olatunji, & Lohr, 2007). These findings suggest that the insecure attachment and the experience of interpersonal trauma accentuate sensitivity to environmental cues related to the emotional states of others. This heightened awareness of others appears to be related to both greater intensity of traumatic symptoms and social impairment. Solomon and Mikulincer (2007) have found an association between intrusion and avoidance symptoms and long-term social dysfunction in Israeli combat veterans. A greater degree of hyperarousal, which encompasses interpersonal danger cues, has been associated with more intense PTSD symptoms (Schell, Marshall, & Jaycox, 2004).

A bias toward experiencing other persons as a source of danger would create a conflict with the emotional interregulating functions of attachment. This raises the question of whether awareness of other people, which is part of the attachment system, may work synergistically with hyperarousal symptoms in people suffering from PTSD in a way that heightens attachment avoidance. Chronic states of alarm may interfere with engaging other people in effective, emotionally regulating exchanges—either by pushing others away through noxious emotional manifestations (anger, fear, lack of emotional reciprocity) or pulling away from others in the service of diminishing provocative stimuli. This would lead to the experience of emotional connectedness as unrewarding, which Mikulincer, Shaver, and Pereg (2003) describe as the pretext for attachment-avoiding strategies geared toward deactivating the attachment system.

Avoidance has several adaptive advantages for those suffering from the effects of chronic PTSD but at considerable interpersonal cost. Attachment avoidance diminishes the reciprocal regulatory demand that comes with being attached to another person, preserving internal resources for self-soothing and self-regulating. Attachment avoidance also reduces interpersonal stimuli, titrating the interpersonal signals that provoke hyperarousal and attachment system

responses. Finally, attachment avoidance also helps maintain the protective function of hyperarousal, by discouraging the formation of relationships that might eventually result in a diminished perception of threat from the interpersonal environment. Although this strategy helps reduce the short-term activation of uncomfortable emotional states, in the long-term, it deprives the person of the benefits of positive social support, which can help the patient modulate the exaggerated responsiveness to external cues that result from trauma.

## Limitations

The major limitations of the study are its small, self-selected sample and its post hoc design, which gives us only a rough picture of the veterans' precombat social environment and no picture of their social environment after their war experience. This limits our ability to understand the effects of social support in the formation, or potential modification, of the veterans' attachment characteristics in the years following their return home. The findings point to how these veterans describe their current attachment experience but not the influences on which that experience is based. The role of chronic PTSD symptoms, military service, or other unknown intervening variables cannot be ruled out as contributing to the degree of attachment avoidance observed in this sample. Whereas the profile of attachment distribution in this sample was compared with a normative convenience sample, a control sample of combat veterans without combat-related PTSD would have been more desirable, and although the findings fit into a body of literature that suggests a pathway by which PTSD symptoms and attachment interact, the model presented is clearly speculative. The findings of this study may fit into other theoretical constructs and should be interpreted with due caution, given the limitations described.

There are also conceptual limits to measuring attachment anxiety and avoidance along strictly positive and negative poles, which does not account for attachment variability across different relationships. Hazan and Shaver (1994) note that people's dominant attachment styles do not necessarily reflect the attachment characteristics of all their close relationships. In asking the veterans of this sample to describe how they experience being close to others in general, a degree of clarity is lost in understanding how veterans might experience relationships with specific persons or groups. Finally,

the small sample size may have been simply insufficient to capture other significant relationships that could have emerged in a study with a larger sample or in comparison with a control group.

## Implications for Future Research

The findings support the hypothesis that combat veterans with PTSD endorse characteristically insecure attachment styles and replicate prior findings that insecure attachment, using adapted Ainsworth categories, is associated with more self-reported PTSD symptoms. This association was more robust and specific to attachment avoidance when using Bartholomew's two-dimensional model of attachment classification. However, the findings suggest that the relationship between the attachment dimensions of anxiety and avoidance have only a modest overlap with cognitive distortions associated with PTSD.

Among the questions raised by these findings are whether other populations of traumatized individuals (rape survivors, former political prisoners) would exhibit similar attachment characteristics and whether those characteristics would have the same level of correlation with posttraumatic symptoms. This would shed light on how generalizable the findings of this study are to clients who have experienced other forms of trauma.

The most important research implication of this study is the need for an examination of the relationship between hyperarousal, PTSD symptom level, and attachment avoidance. The hypothesis offered regarding the association between hyperarousal and emotional regulation was not tested in this study and requires empirical validation. If validated, it would suggest that interventions aimed at hyperarousal and threat perception are important components of post-deployment mental health care for combat veterans, with the goal of helping them preserve and make the most effective use of their social supports.

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