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Coping, Symptoms, and Functioning Outcomes of Patients With Posttraumatic Stress Disorder

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This study examines the association between approach coping and better functioning outcomes and the reciprocal relationships between coping and posttraumatic stress disorder (PTSD) symptoms in patients diagnosed with PTSD. Posttraumatic stress disorder patients receiving services in five VA health care systems were randomly selected and surveyed at baseline and followed 10 months later. Analyses of longitudinal data using structural equation modeling techniques showed that more approach coping predicted better family and social functioning. Cognitive avoidance coping predicted more PTSD symptoms, and more PTSD symptoms predicted more approach coping and more behavioral avoidance coping. Approach coping may enable patients with chronic PTSD to establish and maintain better relationships with family and friends, despite continuing PTSD.

Posttraumatic stress disorder (PTSD) is a relatively common psychiatric disorder that often is chronic and has many debilitating effects on affected individuals. Epidemiological studies have indicated a lifetime prevalence of PTSD from 8% to 12% in the U.S. general population (Breslau, Davies, Andreski, & Peterson, 1991). Among trauma-exposed individuals, 11% to 48% will develop PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson,

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1995). Posttraumatic stress disorder has debilitating effects on individuals' family and social functioning, and many people never fully remit from PTSD, even after many years. A prospective longitudinal study showed that the probability of full remission from a chronic episode of PTSD patients was only 18% in 5 years, and that the average length of the index episode of PTSD was 19 years (Zlotnick et al., 1999). An estimated 15% of combat veterans of the Vietnam War met criteria for current PTSD many years after the war (Kulka et al., 1990).

Given that PTSD is a chronic disorder, it is important to identify predictors of better functioning among PTSD patients despite their continuing symptoms. Data from a growing number of studies indicate that several factors are associated with resistance to debilitating effects of adverse life events or trauma. These factors include higher IQ (Radke-Yarrow & Brown, 1993; Tiet et al., 1998, 2001), a hardy disposition (Kobasa, Maddi, & Kahn, 1982; Sutker, Davis, Uddo, & Ditta, 1995), social resources or support (Cohen & Wills, 1985; Dalgleish, Joseph, Thrasher, Trannah, & Yule, 1996; Kessler, Price, & Wortman, 1985; Neria, Solomon, & Dekel, 1998; Thoits, 1985) including family resources (Figley, 1986; Holahan, Moos, & Bonin, 1999; King, King, Foy, Keane, & Fairbank, 1999; Tiet et al., 1998, 2001), and adaptive coping (e.g., Lazarus & Folkman, 1984; Moos & Schaefer, 1993; Sharkansky et al., 2000; Wolfe, Keane, Kaloupek, Mora, & Wine, 1993).

Although studies have indicated that coping is critically related to adjustment following a wide range of severe life stressors (Benotsch et al., 2000; Lazarus & Folkman, 1984; Moos & Schaefer, 1993; Solomon, Mikulincer, & Arad, 1991; Wolfe et al., 1993), no empirical study has examined the longitudinal relationship of coping on functioning outcomes in chronic PTSD patients. Coping is a person's cognitive and behavioral efforts in response to the demands of the person-environment transaction that the individual perceives as exceeding his or her existing resources (Lazarus & Folkman, 1984; Folkman & Lazarus, 1991). Contemporary theories emphasize the multidimensional aspects of coping processes. Researchers have used three overlapping conceptual approaches to classify coping responses: the orientation (approach vs. avoidance), method (cognitive vs. behavior), and focus (problem-focused vs. emotion-focused) of coping. In general, people who rely on approach and problem-focused strategies, and who emphasize the positive aspects of stressful situations, are more apt to attain favorable outcomes (Moos, 1993). The focus of this study is on the orientation and method of coping.

Prior research on coping and PTSD has shown that more reliance on approach coping and less reliance on avoidance coping is associated with better symptom outcomes. For example, approach coping characterized a subset of Vietnam veterans who had fewer PTSD symptoms, even though they had had substantial combat exposure (Wolfe et al., 1993).

Avoidance coping, such as not thinking about the problem, relying on externalization and wishful thinking, and engaging in emotional discharge (e.g., crying, shouting) to vent negative affect (Moos, 1993) is associated with greater PTSD severity (Bryant & Harvey, 1995; Sutker et al., 1995), personality disorders (Vollrath, Alnaes, & Torgersen, 1998), violence risk (Kotler et al., 1993), hostility (McCormick & Smith, 1995), suicide (Linehan, Chiles, Egan, Devine, & Laffau, 1986), and comorbid psychopathology among substance use patients (Mezzich, Tarter, Kirisci, Hsieh, & Grimm, 1995). For example, Fairbank, Hansen, and Fitterling (1991) found that former World War II prisoners of war (POWs) with PTSD reported more coping characterized by self-isolation, wishful thinking, and self-blame than did former WWII POWs without PTSD. Sutker et al. (1995) also noted an association between avoidance coping and PTSD symptoms among soldiers assessed within one year of their return from Operation Desert Storm.

Previous studies have examined the reciprocal relationships between coping and PTSD symptoms. Although most studies have relied on cross-sectional data, the following studies are exceptions. Benotsch et al. (2000) showed that more avoidance coping among military reservists who were deployed in Operation Desert Storm predicted more PTSD symptoms 13-months later. Solomon, Mikulincer, and Flum (1988) found that more avoidance coping assessed following Israeli soldiers' participations in

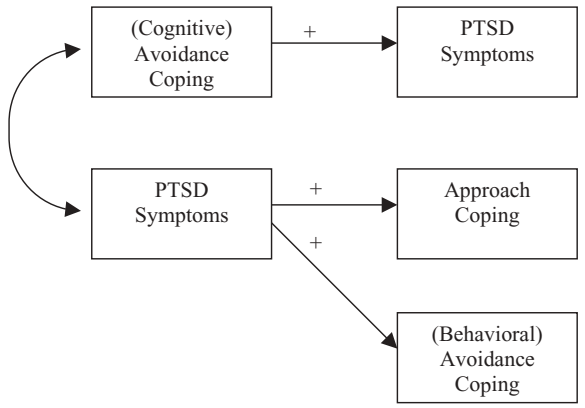

Figure 1. Longitudinal reciprocal relationships between coping and posttraumatic stress disorder symptoms.

the Lebanon War predicted more PTSD symptoms 12-months later. These authors also found that PTSD at Time 1 was associated with problem-focused coping and emotion-focused coping one-year later (Solomon et al., 1988). Based on cross-sectional data, Sharkansky et al. (2000) found that a higher ratio of avoidance coping to approach coping, based on recollection of the coping strategies that were used during the war, was associated with more PTSD symptoms assessed within 5 days of the military personnel's return to the United States from Operation Desert Storm. Longitudinal data failed to show a significant relationship between coping and PTSD symptoms in this study. Figure 1 depicts the relationships that have been examined by these previous studies. However, none of these studies differentiated between cognitive versus behavioral avoidance coping.

Although studies of PTSD patients have focused exclusively on the orientation of coping (approach vs. avoidance), the method of coping, especially cognitive versus behavioral avoidance coping, may have different implications for PTSD symptoms. Specifically, PTSD symptoms, which tend to induce high levels of distress, may predict venting emotions and taking one's anger out on other people, which typify behavioral avoidance coping. In contrast, attempts to deny the seriousness of a problem and to avoid thinking about it, which reflect cognitive avoidance coping, may foreshadow conceptually related aspects of PTSD symptoms, such as intrusive thoughts about the event and the avoidance of the recollections of the event (Figure 1). Given that intrusive thoughts and avoidance are the hallmark of PTSD, patients may use cognitive avoidance or thought suppression to manage intrusive thoughts, which paradoxically may maintain or lead to more severe PTSD symptoms (Ehlers, Mayou, & Bryant, 1998).

However, previous studies on coping of PTSD patients have not made this distinction. Both Benotsch et al. (2000) and Solomon et al. (1988) used the Ways of Coping Checklist (Folkman & Lazarus, 1980) and this measure does not differentiate between cognitive avoidance and behavioral avoidance coping. Sharkansky et al. (2000) administered the Coping Responses Inventory (Moos, 1993), but the cognitive and behavioral avoidance coping scales were combined in this study. We address this issue here by assessing coping with respect to an approach or avoidance orientation, and, for avoidance strategies, we differentiate between cognitive and behavioral responses.

In summary, given that PTSD is a chronic disorder, with little remission of symptoms over time, one important unexplored question is: Does approach coping predict better subsequent family and social functioning outcomes among patients who have chronic PTSD? To our knowledge, no study has examined the longitudinal effects of coping on functioning outcomes in chronic PTSD patients. A positive association between approach coping and functioning among PTSD patients may have important implications for the treatment of patients with this chronic disorder and for improving their quality of life despite chronic psychiatric symptoms.

This study used structural equation modeling techniques to examine the relationships among PTSD symptoms, coping, and functioning outcomes of patients with PTSD. The study focuses on whether coping predicts family and social functioning among patients with chronic PTSD. We expected that approach coping, that is, active planning, direct coping with difficult situations, trying hard to work things out, and focusing on positive aspects of the situation, would predict better family and social functioning, whereas behavioral avoidance coping (e.g., venting emotions by yelling, crying) would predict

worse family and social functioning (Hypothesis 1). Our secondary focus is on the reciprocal longitudinal relationships between coping and PTSD symptoms (Figure 1). We expected that more cognitive avoidance coping would predict more PTSD symptoms, and more PTSD symptoms would predict more approach coping and behavioral avoidance coping (Hypothesis 2) because patients with more PTSD symptoms are expected to experience more stressors, which elicit more coping responses.

Method

Participants

The present study was an outgrowth of a longitudinal study of individuals receiving treatment for posttraumatic stress disorder at five Department of Veterans Affairs (VA) medical centers on the West Coast of the United States. One quarter of prospective participants were randomly selected based on the last two digits of a personal identification number from all patients who had a PTSD diagnosis and a treatment visit in a 2-month period. Experienced clinicians diagnosed posttraumatic stress disorder during regular clinical intake interviews in the usual process of care. Patients were contacted and surveyed by mail, with follow-up contacts by mail and telephone to encourage participation. Of 605 eligible patients, 265 (44%) completed a baseline survey. Participants and nonparticipants did not significantly differ in gender, race, period of service, POW status, and comorbid psychiatric and substance use diagnoses, but participants were an average of 3 years older, $t(359) = 4.4$, $p < .01$. Ten months later, on average, ($SD = 1.6$), participants were reconsented and invited to complete a follow-up survey. Of the 265 patients who completed the baseline survey, 178 (67%) completed the follow-up survey, 2 (1%) died or were too physically ill to participate, and 85 (32%) did not respond or declined to participate. Patients who participated in the follow-up survey and those who were lost to follow-up did not differ in age, gender, ethnic backgrounds, or baseline PTSD symptoms.

All patients had had one or more outpatient visits for VA care in the past year, and had a diagnosis of PTSD recorded during one or more of those visits. Approximately 76% of patients were receiving medications for psychiatric problems at baseline. Among participants who completed the follow-up assessment, 31% reported receiving no mental health or substance use disorder treatment at a VA clinic or a Veterans Center in the prior 6 months, 27% reported 1–5 visits, 25% reported 6–25 visits, and 17% reported more than 25 visits (see Rosen et al., 2005, for more details of the sample).

Measures

The Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1996), which is composed of 22 items rated on 5-point Likert scales, was used to assess posttraumatic stress symptoms ($\alpha = .96$).

Four 6-item subscales of the Coping Responses Inventory (Moos, 1993) were used to assess cognitive approach coping, behavioral approach coping, cognitive avoidance coping, and behavioral avoidance coping. Respondents were asked how they coped with "the most important problem or stressful situation" during the past 6 months, and each coping item was rated on a 4-point Likert scale on the frequency with which they used such coping, ranging from *no* to *yes* to *fairly often* (1 = no; 2 = once or twice; 3 = sometimes; 4 = fairly often). Principal component factor analyses revealed that coping was best measured by three indices in the current sample. Approach coping, a combination of cognitive and behavioral approach coping (e.g., making plans, trying hard), accounted for 23% of the total variance ($\alpha = .90$). Cognitive avoidance coping (e.g., day-dreaming, trying not to think about the problem) accounted for 12% of the variance ($\alpha = .79$). Behavioral avoidance coping (e.g., yelling to let off stream, doing something risky) accounted for 10% of the variance ($\alpha = .66$). Behavioral avoidance coping is aimed at managing affect without directly addressing the original problem behaviorally, and in the context of PTSD, it encompasses responses commonly labeled as acting out (e.g., "take it out on others when you felt angry or depressed,"),

as well as avoidant (e.g., "keep away from people in general").

Two functioning outcomes were assessed. Family functioning was measured by two items from the family composite of the self-report Addiction Severity Index (McLellan et al., 1992; Rosen, Henson, Finney, & Moos, 2000) assessing the number of days in the past 30 days that a respondent had serious conflicts with family members and how much he or she was bothered by such conflicts ($\alpha = .57$). This measure was reverse-scored so that higher scores indicate better functioning. We measured social functioning using three items from the Health and Daily Living Questionnaire (Moos, Cronkite, & Finney, 1990). These items were used to assess the participants' number of close friends, the number of times friends or relatives visited the participant's home in the last week, and the number of times the participant visited friends or relatives outside of his or her home in the last week ($\alpha = .66$).

Age, gender, ethnic background, marital status, health status, and military service-connected disability were included as covariates in the analyses. Ethnic background was dichotomized for White versus other, and marital status was grouped into married versus other. Health status was measured by a single item, "In general would you say your health is . . ." ranging from 1 = *excellent* to 5 = *poor* on a 5-point Likert scale. Military service-connected disability was represented by the percentage of the veteran's medical and psychiatric disability that was connected to military service, as assessed by the VA to determine benefits the veteran received.

Data Analyses

First, correlation analyses were conducted to examine the associations among demographic variables, PTSD symptoms, coping, and functioning outcomes. Then, path analyses, using structural equation modeling techniques and AMOS computer software (Arbuckle & Wothke, 1999), were conducted to examine the longitudinal relationships among coping (i.e., approach coping, cognitive avoidance coping, and behavioral avoidance coping), PTSD symptoms, and family and social functioning outcomes, with all six covariates simultaneously included in the model.

RESULTS

Table 1 shows descriptive statistics of the participants who responded to both the baseline and follow-up surveys ($N = 178$). The participants were predominantly men (93%). On average, the participants were 59 years old ($SD = 11.3$); 53% were married; 80% were White. The majority of participants (89%) served in the military during major conflicts, and had an average of 45% of service-connected disability ($SD = 35$). Nearly three fourths of the participants (74%) had a medical or psychiatric disability related to their military service. They had an average score of 3.8 on their general health (3 = *good*; 4 = *fair*).

Table 2 shows correlations among demographic variables, PTSD symptoms, coping, and functioning outcomes at baseline and follow-up. Items measuring functioning outcomes were standardized before being combined; therefore, these measures had means that are close to 0 and standard deviations that are close to 1. Approach coping at baseline was significantly and positively correlated with family ($r = .21$) and social ($r = .19$) functioning at follow-up. Behavioral avoidance coping at baseline was significantly and inversely correlated with family ($r = -.35$) and social ($r = -.31$) functioning at follow-up.

Concerning the relationship between PTSD symptoms and coping, cognitive avoidance ($r = .41$) and behavioral avoidance ($r = .33$) coping at baseline were significantly and positively correlated with PTSD symptoms at follow-up. The PTSD symptoms at baseline were significantly and positively correlated with approach ($r = .21$), cognitive avoidance ($r = .32$), and behavioral avoidance ($r = .48$) coping at follow-up.

Structural equation modeling (SEM) with observed variables was used to examine (1) the longitudinal predictive effects of coping on functioning outcomes with PTSD symptoms and functioning levels at baseline controlled, and (2) the longitudinal reciprocal relationships between coping and PTSD symptoms. Structural equation modeling was used because it allowed the

Table 1. Descriptive Statistics of the Participants Responding to Both the Baseline and Follow-up Surveys ($N = 178$)

Variable	%	*M*	*SD*
Male (%)	93	–	–
Age	–	59.00	11.32
Ethnic background (%)			
White	80	–	–
African American	10	–	–
Hispanic	7	–	–
Asian/Pacific Islander	3	–	–
Marital Status (%)			
Married	53	–	–
Divorced	28	–	–
Separated	3	–	–
Widowed	7	–	–
Never married	9	–	–
Served during major conflicts (%)	89	–	–
Any substance use disorders (%)	20	–	–
Major depressive disorder (%)	24	–	–
Any anxiety disorders (%)	18	–	–
Schizophrenia (%)	7	–	–
Bipolar (%)	5	–	–
Medical or psychiatric disability (%)	74	–	–
% of Service-connected disability	–	45.00	35.00
Health status	–	3.80	0.90
Impact of Events Scale-Revised Total Score - T1	–	53.11	18.50
Impact of Events Scale-Revised Total Score - T2	–	52.01	19.15
Approach coping - T1	–	2.52	0.71
Cognitive avoidance coping - T1	–	2.76	0.79
Behavioral avoidance coping - T1	–	2.37	0.78
Approach coping - T2	–	2.43	0.73
Cognitive avoidance coping - T2	–	2.57	0.84
Behavioral avoidance coping - T2	–	2.30	0.76
Family functioning - T1	–	0.12	0.83
Social functioning - T1	–	0.06	0.90
Family functioning - T2	–	0.00	0.82
Social functioning - T2	–	0.00	0.77

Note. T1 = Time 1; T2 = Time 2.

relationships among all coping measures, PTSD symptoms, and all functioning measures at both baseline and follow-up to be examined simultaneously. Beyond focusing on the specific paths for our hypotheses, we also let AMOS estimate all possible longitudinal paths because all variables were potential predictors of each other over time. Measures of PTSD symptoms, coping, and functioning outcomes at baseline were allowed to predict their counterparts and all other variables at follow-up (Table 3). All covariates (age, gender, ethnic background, marital status, health status, and service-connected disability) were included in the model. The model simultaneously included twelve predictors (baseline measures) and six outcomes (follow-up measures). The six outcomes included PTSD symptoms, three measures of coping, family functioning, and social functioning. The 12 predictors included the baseline measures

Table 2. Correlations Among PTSD Symptom, Coping, and Functioning Variables in Patients Who Completed Both the Baseline and Follow-up Surveys ($N = 178$)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. IES-R Total Score - T1	–	.69*	.01	.47*	.51*	.21*	.32*	.48*	−.40*	−.33*	−.29*	−.24*
2. IES-R Total Score - T2		–	−.04	.41*	.33*	.08	.45*	.42*	−.25*	−.25*	−.33*	−.34*
3. Approach coping - T1			–	.20*	.06	.56*	.13	.06	.13	.12	.21*	.19*
4. Cognitive avoidance coping-T1				–	.38*	.26*	.50*	.27*	−.10	−.29*	−.17*	−.14
5. Behavioral avoidance coping - T1					–	.08	.18*	.52*	−.42*	−.41*	−.35*	−.31*
6. Approach coping - T2						–	.28*	.20*	.01	.07	.03	.10
7. Cognitive avoidance coping - T2							–	.41*	−.08	−.11	−.20*	−.20*
8. Behavioral avoidance coping - T2								–	−.30*	−.35*	−.40*	−.36*
9. Family functioning - T1									–	.26*	.50*	.24*
10. Social functioning - T1										–	.18*	.50*
11. Family functioning - T2											–	.12
12. Social functioning - T2												–

Note. T1 = Time 1; T2 = Time 2; IES-R = Impact of Event Scale-Revised.
* $p < .05$.

of the outcomes (PTSD symptoms, coping, and functioning) and six covariates. Therefore, all 12 predictors in the model simultaneously predicted all six of the outcomes. All baseline measures were allowed to covary, but variables at follow-up were not.

Figure 2 shows the significant paths of the model and the standardized coefficients (β) indicating the strength of the associations, and Table 3 shows all structural paths of the model. Structural equation modeling essentially tests how well a specified model fits the data; the model (Figure 2 and Table 3) fits the data extremely well, with $\chi^2(5) = 5.20$, *ns,* GFI = .996, adjusted GFI = .874, RMSEA = .016 (RMSEA confidence interval = .000–.114.) For clarity, functioning measures and behavioral avoidance coping at baseline were omitted in Figure 2 because these measures did not predict other variables at follow-up; covariates were also omitted.

For Hypothesis 1, Figure 2 shows that, with the effects of baseline PTSD symptoms, functioning levels, other coping indices, and the covariates statistically controlled, approach coping at baseline predicted better social (β = .15, $p < .05$) and family (β = .21, $p < .01$) functioning at follow-up. For Hypothesis 2, in terms of the longitudinal relationships between coping and PTSD symptoms, when the effects of baseline levels of coping, PTSD symptoms, functioning levels, and the covariates were controlled, more

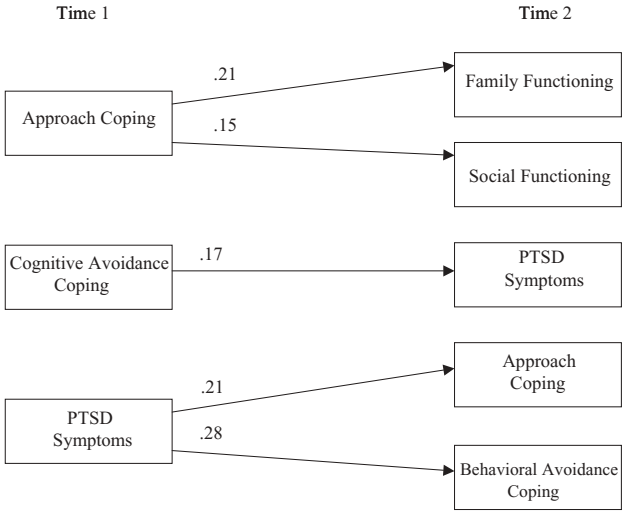

Figure 2. Predictive longitudinal relationships of coping on functioning outcomes and longitudinal reciprocal relationships between posttraumatic stress disorder symptoms and coping. Values are standardized regression coefficients (βs).

baseline cognitive avoidance coping predicted more PTSD symptoms (β = .17, $p < .05$) at follow-up. In addition, more PTSD symptoms at baseline predicted more approach coping (β = .21, $p < .05$), and more behavioral avoidance coping (β = .28, $p < .001$) at follow-up.

Table 3. All Structural Paths Simultaneously Estimated by the Structural Equation Model With 12 Predictors and 6 Outcome Measures

Predictor	Outcome measure	β	*B*	*SE B*	*Z*
Approach coping	Family functioning	.21	0.29	0.10	3.06**
Cognitive avoidance coping	Family functioning	−.14	−0.18	0.10	−1.76
Behavioral avoidance coping	Family functioning	−.10	−0.13	0.11	−1.17
PTSD Symptoms	Family functioning	−.02	0.00	0.01	−0.17
Family functioning	Family functioning	.41	0.42	0.08	5.30***
Social functioning	Family functioning	−.09	−0.08	0.07	−1.13
Age	Family functioning	−.04	0.00	0.01	−0.52
Male	Family functioning	.06	0.22	0.26	0.83
White	Family functioning	.10	0.21	0.14	1.51
Married	Family functioning	−.19	−0.39	0.14	−2.82**
Health status	Family functioning	−.02	−0.03	0.08	−0.35
Military service-connected disability	Family functioning	.09	0.00	0.00	1.33
Approach coping	Social functioning	.15	0.22	0.10	2.21*
Cognitive avoidance coping	Social functioning	.01	0.01	0.11	0.10
Behavioral avoidance coping	Social functioning	−.05	−0.07	0.12	−0.60
PTSD Symptoms	Social functioning	−.03	0.00	0.01	−0.31
Family functioning	Social functioning	−.01	−0.01	0.08	−0.13
Social functioning	Social functioning	.36	0.32	0.07	4.44***
Age	Social functioning	.20	0.02	0.01	2.67**
Male	Social functioning	.00	−0.01	0.28	−0.05
White	Social functioning	−.01	−0.01	0.15	−0.09
Married	Social functioning	−.08	−0.17	0.15	−1.13
Health status	Social functioning	−.14	−0.16	0.08	−1.97*
Military service-connected disability	Social functioning	−.02	0.00	0.00	−0.26
Approach coping	Approach coping	.54	0.55	0.07	8.37***
Cognitive avoidance coping	Approach coping	.11	0.11	0.07	1.52
Behavioral avoidance coping	Approach coping	−.10	−0.09	0.08	−1.21
PTSD Symptoms	Approach coping	.21	0.01	0.00	2.51*
Family functioning	Approach coping	−.01	0.00	0.05	−0.08
Social functioning	Approach coping	.10	0.06	0.05	1.38
Age	Approach coping	.07	0.00	0.00	1.02
Male	Approach coping	.00	0.01	0.18	0.05
White	Approach coping	−.02	−0.03	0.10	−0.30
Married	Approach coping	.14	0.20	0.09	2.16*
Health status	Approach coping	.09	0.08	0.05	1.40
Military service-connected disability	Approach coping	−.17	0.00	0.00	−2.72**
Approach coping	Cognitive avoidance coping	.01	0.01	0.08	0.17
Cognitive avoidance coping	Cognitive avoidance coping	.52	0.55	0.08	6.59***
Behavioral avoidance coping	Cognitive avoidance coping	−.06	−0.07	0.09	−0.74
PTSD Symptoms	Cognitive avoidance coping	.14	0.01	0.00	1.63
Family functioning	Cognitive avoidance coping	−.01	−0.01	0.07	−0.18
Social functioning	Cognitive avoidance coping	.08	0.06	0.06	1.03
Age	Cognitive avoidance coping	−.01	0.00	0.01	−0.10
Male	Cognitive avoidance coping	−.22	−0.72	0.22	−3.31***
White	Cognitive avoidance coping	−.02	−0.04	0.12	−0.32
Married	Cognitive avoidance coping	.08	0.13	0.11	1.10

Continued

Table 3. *Continued*

Predictor	Outcome measure	β	*B*	*SE B*	*Z*
Health status	Cognitive avoidance coping	.02	0.02	0.07	0.28
Military service-connected disability	Cognitive avoidance coping	−.17	0.00	0.00	−2.56**
Approach coping	Behavioral avoidance coping	.05	0.06	0.07	0.77
Cognitive avoidance coping	Behavioral avoidance coping	.03	0.03	0.08	0.43
Behavioral avoidance coping	Behavioral avoidance coping	.22	0.21	0.08	2.56*
PTSD Symptoms	Behavioral avoidance coping	.28	0.01	0.00	3.28***
Family functioning	Behavioral avoidance coping	−.03	−0.02	0.06	−0.35
Social functioning	Behavioral avoidance coping	−.05	−0.03	0.05	−0.61
Age	Behavioral avoidance coping	−.16	−0.01	0.01	−2.25*
Male	Behavioral avoidance coping	.02	0.05	0.20	0.22
White	Behavioral avoidance coping	−.10	−0.16	0.11	−1.50
Married	Behavioral avoidance coping	.07	0.11	0.11	1.04
Health status	Behavioral avoidance coping	.08	0.07	0.06	1.17
Military service-connected disability	Behavioral avoidance coping	−.10	0.00	0.00	−1.51
Approach coping	PTSD Symptoms	−.06	−1.69	1.57	−1.07
Cognitive avoidance coping	PTSD Symptoms	.17	4.04	1.68	2.41*
Behavioral avoidance coping	PTSD Symptoms	−.01	−0.33	1.82	−0.18
PTSD Symptoms	PTSD Symptoms	.64	0.64	0.08	8.48***
Family functioning	PTSD Symptoms	.06	1.16	1.30	0.89
Social functioning	PTSD Symptoms	−.02	−0.30	1.12	−0.27
Age	PTSD Symptoms	−.01	−0.02	0.11	−0.16
Male	PTSD Symptoms	−.04	−2.59	4.34	−0.60
White	PTSD Symptoms	.08	3.10	2.29	1.36
Married	PTSD Symptoms	.06	2.10	2.28	0.92
Health status	PTSD Symptoms	.04	0.84	1.31	0.65
Military service-connected disability	PTSD Symptoms	.00	0.00	0.03	−0.04

Note. Model $\chi^2(5) = 5.22$; *ns*; GFI = .996, adjusted GFI = .874; RMSEA = .016; RMSEA confidence interval = .000–.114.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

DISCUSSION

This study shows that approach coping predicts family and social functioning, despite chronic PTSD symptoms. Furthermore, in terms of the longitudinal reciprocal relations between coping and PTSD symptoms (Figure 2), more cognitive avoidance coping predicted more PTSD symptoms; PTSD symptoms not only predicted more behavioral avoidance coping, they also predicted more approach coping.

This study found that approach coping predicted improved family and social functioning of patients with chronic PTSD. Approach coping, such as making plans, actively confronting difficult situations, trying hard to work things out, and focusing on positive aspects of the situation, seems to be instrumental to better functioning of patients with chronic PTSD. Approach coping may have enabled these individuals to analyze their objective environment, make plans, and actively try to change the stressful features of their lives. For example, for a PTSD patient who is hypersensitive to loud noises, using approach coping may involve communicating his wishes and requesting his family to minimize noises around the home, insulating walls to dampen outside sounds, or moving to a quieter neighborhood. By actively communicating with other people and employing such approach coping strategies, the patient can lessen the negative impact from the environment, reduce family and interpersonal conflicts, and carry out daily activities more efficiently, despite experiencing chronic posttraumatic stress symptoms.

In bivariate analyses, as expected, more baseline behavioral avoidance coping was associated with poorer family and social functioning, both concurrently and at follow-up (Table 2). The longitudinal relationships did not hold in multivariate analyses (Figure 2 and Table 3). In part, this is due to the inclusion in the model of the six covariates. In a multivariate analysis without the covariates (data not shown), more behavioral avoidance coping at baseline was significantly ($p < .05$) associated with poorer family and social functioning, even when PTSD symptoms at baseline were included in the model. Behavioral avoidance coping responses, such as withdrawal from others, venting emotions by yelling or shouting to "let off steam," or crying or letting feelings out on other people is likely to alienate family and friends; however, these influences may not be independent of variables such as age and marital and health status.

Our findings highlight the important distinction between cognitive and behavioral avoidance coping given that these constructs are differentially associated with PTSD symptoms and functioning outcomes. Two previous studies (Benotsch et al., 2000; Solomon et al., 1988) found that avoidance coping predicted PTSD symptoms; Solomon and colleagues (1988) also found that more PTSD symptoms predicted avoidance coping. However, these studies did not differentiate between cognitive and behavioral avoidance coping. Because cognitive and behavioral avoidance coping were examined as two distinct constructs in the current study, we found that cognitive (but not behavioral) avoidance coping predicted more PTSD symptoms, and that more PTSD symptoms predicted more behavioral (but not cognitive) avoidance coping.

More cognitive avoidance coping, which is conceptually similar to avoidance of reminders and numbing, may prospectively predict more PTSD symptoms because denying the severity of a problem and trying not to think about it may lead to more recurrent and intrusive recollections of the trauma. Some of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*; American Psychiatric Association, 1994) criteria for PTSD symptoms, especially reexperiencing the event, numbing, and avoidance of the reminders of the event, involve cognitive processes; accordingly, cognitive coping responses should be more strongly predictive of PTSD symptoms than are behavioral coping responses. Cognitive and behavioral approach coping are relatively highly correlated (average $r = .43$ in the Coping Responses Inventory (CRI) normative sample), whereas cognitive and behavioral avoidance coping are much less highly interrelated ($r = .23$ in the CRI normative sample; Moos, 1993). Thus, given the relatively low correlation between them, it is reasonable to expect that cognitive and behavioral avoidance coping could have differential influences on PTSD symptoms.

The effects of cognitive versus behavioral avoidance coping can be illustrated by considering the parallel literature on expression and management of anger, one of the most common issues for patients with PTSD. Using behavioral avoidance coping to deal with anger is akin to emotional discharge or "anger out" (Speilberger, Reheiser, & Sydeman, 1995), i.e., displaying evident hostility or rage, perhaps followed by avoiding social interaction so not to be provoked again. Aggressiveness and social withdrawal both increase interpersonal conflict and isolation. On the other hand, cognitive avoidance coping is akin to "anger suppression," i.e., denying or minimizing feelings of irritation without resolving the underlying grievance. Although suppressing feelings may not impact interpersonal relationships directly, it is likely to exacerbate psychological distress or PTSD symptoms, and may eventually give way to more hostile discharge coping.

The distinction between cognitive and behavioral avoidance coping is also important in our understanding of the relationships between coping and PTSD symptoms. More PTSD symptoms predicted more approach and more behavioral avoidance coping in this study. Consistent with Solomon et al. (1988), we found more PTSD symptoms predicted more behavioral avoidance coping (although these authors did not differentiate between cognitive and behavioral avoidance coping). However, in contrast to Solomon and colleagues (1988), we found more PTSD symptoms predicted more approach coping. We believe that these findings reflect higher levels of stressor among individuals with more PTSD symptoms. Coping is a person's cognitive and behavioral efforts to manage the demands of

person–environment transactions that are appraised as taxing or exceeding the person's resources (Folkman, Lazarus, Gruen, & DeLongis, 1986). Therefore, when stressors occur, an increase in both approach and avoidance coping is likely. However, cognitive approach and behavioral approach coping may be less distinct, as the results of the factor analyses showed.

Our findings indicate that coping is closely linked to PTSD symptoms as well as functioning outcomes and may represent at least two somewhat distinct strategies for intervention. A reduction of cognitive avoidance coping may lessen future PTSD symptoms. Alternatively, approach coping can be targeted directly in an effort to improve patient functioning outcomes, despite their chronic PTSD symptoms. Our findings may have important clinical implications if future studies confirm the association between coping and functioning outcomes in PTSD patients.

In fact, this conceptual framework is consistent with two different approaches to PTSD treatment. First, the psychosocial treatments which have generally been shown to be most effective in reducing PTSD symptoms in research trials are treatments such as exposure, cognitive-processing therapy, and eye-movement desensitization and reprocessing (EMDR), which promote processing of traumatic memories (Chemtob, Tolin, van der Kolk, & Pitman, 2000; Rothbaum, Meadows, Resick, & Foy, 2000). These are all consistent with reducing PTSD symptoms by reducing cognitive avoidance coping. Second, in common practice, treatment approaches for patients with longstanding chronic PTSD are often aimed less at symptom remission than at improving patients' coping in the face of possible continuing symptoms (Rosen et al., 2004).

A variety of interventions have been used with PTSD patients to increase approach coping and reduce avoidance coping, including stress inoculation training (Rothbaum et al., 2000), acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999), anger management (Reilly, Clark, Shopshire, Lewis, & Sorensen, 1994), couples therapy (e.g., Monson, Schnurr, Stevens, & Guthrie, 2004), and "Seeking Safety" psychotherapy for comorbid PTSD and substance use (Najavits, Weiss, Shaw, & Muenz, 1998). However, many of these approaches have only been tested in relatively small samples of PTSD patients, have included components other than coping skills training, and have not measured the specific impacts of coping on functioning outcomes. Therefore, the utility of changing and improving coping strategies alone is unknown. This highlights the need for further research to confirm whether interventions to improve coping can improve the quality of life of individuals with PTSD even if their symptoms do not remit.

This study has some important limitations. Although the measures of family and social functioning were differentially associated with PTSD symptoms and types of coping, the measures consist of only two and three items, respectively, and their reliability is less than optimal. Therefore, future studies using improved measures of family and social functioning are essential for a better understanding of the relationships between coping and functioning among PTSD patients. In addition to the measures, the sample consisted of only veterans, and mostly men seeking treatment at the VA. Therefore, the applicability of the findings to other populations (such as children, women, or men with other traumatic experiences) is unknown. Nevertheless, the finding that approach coping may have an impact on family and social functioning in PTSD patients despite their PTSD symptoms is potentially important, and attempts should be made to replicate this finding in larger and more heterogeneous samples.

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