

Repressive Coping Style, Acute Stress Disorder, and Posttraumatic Stress Disorder After Myocardial Infarction

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Objective: The study examined the associations between repressive coping style, acute stress disorder (ASD) and subsequent posttraumatic stress disorder (PTSD) after myocardial infarction (MI) to ascertain the efficacy of repressive coping style in immediate and long-term adjustment to stress. **Methods:** A total of 116 MI patients were examined twice: within a week of their MI (time 1) and 7 months later (time 2). At time 1, repressive coping style, perceived threat, and ASD were measured by self-report questionnaires. In addition, medical measures indicative of the severity of the MI were obtained from patients' hospital records. At time 2, PTSD was assessed. The distribution of the repressive coping style was compared with that of 72 matched control subjects. **Results:** Findings revealed the adaptiveness of repressive coping style both in the immediate and longer-term aftermath of MI: repressors endorsed less ASD and PTSD than nonrepressors. In addition, the contribution of repressive coping style to PTSD was unique and beyond the implications of severity of MI, perceived threat, and immediate ASD. **Conclusions:** The findings support the role of repressive coping style as a stress-buffer; several mechanisms that explain this role are suggested. **Key words:** repressive coping style, acute stress disorder, posttraumatic stress disorder, myocardial infarction.

ASD = acute stress disorder; CPK = creatine phosphokinase; DSM = Diagnostic and statistical manual of mental disorders; MI = myocardial infarction; PTSD = posttraumatic stress disorder.

INTRODUCTION

MI is a stressful, life-threatening experience. The threat remains even after the acute MI is over. Patients may develop complications and recurrent cardiac events (1), and death rates are high in both the short- and long-term aftermath (2). The stress is intensified by the fact that MI is often a sudden and unanticipated event over which the victim has no control. In addition, the damage to the heart, with its symbolic meaning as the essence of the human being, may shatter the patient's sense of wholeness and safety, leaving him or her with a lasting sense of vulnerability. Therefore, several authors have suggested that MI may be considered as a traumatic event and a risk factor for posttraumatic stress reaction (3–5).

The DSM-IV (6) defines ASD and PTSD, respectively, as the immediate and long-term disorders after exposure to traumatic event. ASD is diagnosed in the first month after exposure; PTSD is diagnosed at least

a month after exposure or any time after that (6). ASD is considered a precursor of PTSD (7, 8).

A small number of recent studies assessed the prevalence of ASD and PTSD among MI patients. Ginzburg et al. (unpublished observations, 2001) found that 18% of MI patients had ASD in the first week after their MI. Studies of PTSD among MI patients found that between 8% and 25% of them suffered from this disorder during the first year after their MI (Ginzburg et al. unpublished observations, 2001; 9–11). Ladwig et al. (12), who followed-up survivors of cardiac arrest 1 to 5 years after the event, reported that 38% of subjects had PTSD at the time of the assessment. Despite the variance in the rates, these studies suggest that MI can be a risk factor for ASD and PTSD.

The early identification of cardiac patients who are at high risk for ASD and PTSD is important. These disorders are not only highly distressing in themselves, but are associated with increased likelihood of psychosocial and physiological problems (Ginzburg et al. unpublished observations, 2001; 9, 11, 12). Studies of trauma survivors suggest that immediate intervention may be effective in averting the chronicization of the stress disorder (13). This study examines the role of repressive coping style in predicting ASD and PTSD after MI.

Repressive Coping Style

Repression is defined in the literature as the cognitive and emotional effort to ignore or divert attention from threatening stimuli, whether internal or external. It has been operationalized in a wide variety of ways (14–16), among the most influential being that of Weinberger et al. (17, 18). Weinberger developed the concept of a Repressive Coping Style, which he operationalized as a specific combination of anxiety and defensiveness. Postulating four combinations of re-

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sponses to threat, Weinberger defined repressors as individuals who express low anxiety and high defensiveness. They are distinct, in his formulation, from three groups of nonrepressors: low-anxious individuals, who are low in both anxiety and defensiveness; high-anxious individuals, who are high in anxiety and low in defensiveness; and defensive individuals, who are high in both anxiety and defensiveness. This typology distinguishes repressors, whose low level of anxiety reflects unawareness of their emotional state, from those who are really not anxious (low-anxious) and those who are anxious despite their attempts at repression (defensive).

Subsequent studies suggest that the repressive coping style is an unconscious intrapsychic defense (18, 19). Substantial and persistent use of this defense mechanism turns it into a basic personality dimension (20) that is implicated in various personality, cognitive, and behavioral processes (21–24).

The functionality of repression in dealing with trauma is a subject of debate. Horowitz (25) argues that the avoidance of threatening emotions and cognitions by persons who experienced traumatic events may impede the processing, assimilation, and accommodation of the experience that are necessary to the integration and working through of the traumatic contents. As a result, the traumatic experience remains isolated and fixated, and recovery is blocked. Others, however, suggest that in certain circumstances, repressing and avoiding thoughts, memories, and other cues related to the threat may be adaptive if it is not carried too far (16, 26–28). They contend that when the avoidance is flexible, is not taken to an extreme, and does not substantially distort the perception of reality, its use may promote well being. In these cases, the repressor is able to approach the trauma-induced emotions and cognitions gradually, in small doses, and without being overwhelmed by them and also to maintain his or her hope and courage.

The efficacy of the repressive coping style after exposure to traumatic stress in general, and MI in particular, has not been studied. However, the utility of related mechanisms, including avoidance, suppression, and denial, which Roth and Cohen (16) have grouped together under the rubric of avoidant coping strategies, has been examined. Most studies report that these avoidant strategies are effective in reducing traumatic stress-induced distress in the short-term (28, 29), including after an MI (30, 31). The only exception to date is the study by Harvey and Bryant (8) showing that avoidant coping is associated with ASD among motor vehicle casualties.

The efficacy of the avoidant mechanisms for long-term adjustment after traumatic experiences is less

clear. Several studies report that avoidant coping is associated with increased PTSD after various traumatic events (32–37). However, because these studies measured avoidant coping and PTSD simultaneously, it was not determined whether the use of this coping strategy is a risk factor for PTSD or a manifestation of the disorder.

The few studies that examined the implications of avoidant coping style prospectively have inconsistent findings. Bonanno et al. (38) found that emotional avoidance among conjugally bereaved subjects 6 months after the loss predicted a decrease in grief reaction 14 months after the loss. Sharkansky et al. (39), however, found that this coping style, assessed among Gulf War combatants 5 days after homecoming, predicted PTSD 18 to 24 months later. Benotsch et al. (40) similarly reported that avoidant coping style among Gulf War veterans 14 months after the war predicted PTSD a year later, and Mikulincer and Solomon (41) found that avoidant coping, assessed among traumatized Israeli veterans of the Lebanon war 2 years after the war, was associated with exacerbation of PTSD a year later. But because Benotsch et al. (40) and Mikulincer and Solomon (41) measured avoidant coping 1 and 2 years, respectively, after their subjects' traumatic exposure, it not certain in these studies either that this coping style is an antecedent of PTSD and not an outcome.

Therefore, although there is evidence for the positive impact of repressive coping in the short term, its impact on longer-term emotional adjustment after a traumatic event is less clear. This study examines the contribution of repressive coping style to the development of ASD in the first week after MI, and to PTSD 7 months later, while controlling for the clinical severity of the MI and the perceived threat.

METHOD

Subjects

The subjects were 116 MI patients and 72 matched control subjects. All of the subjects were assessed twice. The MI subjects were drawn from all the patients who were admitted to the cardiac intensive care unit in three Israeli medical centers during the data collection period who met the following criteria: 1) presence of MI diagnostic criteria—typical clinical symptomatology, ECG evidence of MI, and typically elevated serum levels of myocardial enzymes; 2) age ≤ 70 years; 3) Hebrew speaking; and 4) not suffering from any other major illness. In all, 245 patients met the criteria. Of these, 196 were assessed during their hospitalization (time 1; mean = 3.45, SD = 2.32 days after admission). The second assessment (time 2) was conducted in the patients' homes about 7 months after their admission (mean = 7.06, SD = 2.32 months). Four of the patients who participated at time 1 died before the second assessment, 23 were not located, and 53 refused to be interviewed. The data reported in

this study were collected from the 116 patients who were assessed at time 2.

The control group was drawn from a sample of 72 subjects who matched the MI patients in sociodemographic variables and met the following criteria: 1) no history of MI or cardiac disease; 2) age ≤ 70 years; and 3) Hebrew speaking.

Examination of sociodemographic variables indicated that the MI and control groups were similar in gender, age, level of education, income, and marital status (Table 1). The only difference was in country of origin: A higher proportion of MI patients originated from Asian and African countries, whereas a higher proportion of the control subjects were Israeli-born.

To locate possible bias caused by selective attrition, we compared the persons who participated in the study at both time 1 and time 2 with those who participated at time 1 and then dropped out. The comparisons revealed no differences in sociodemographic background, clinical measures, repressive coping style, or ASD.

Measures

Background variables. Data were gathered from the participants on their gender, age, country of birth, marital status, level of education, and income. The subjects' history of trauma (before time 1) was queried via a self-report questionnaire listing 11 events, each of which has been recognized in the literature as having a potential for provoking PTSD (eg, war, assault, and severe accident) (42). Subjects were asked to indicate whether they had experienced each event. Each subject received a trauma history score, which was the number of reported events.

Clinical measures of severity of MI. Clinical data on the MI were gathered from the patients' hospital records. Data were gathered on occurrence of previous MI, location of MI (anterior/nonanterior),

and level of myocardial enzyme (CPK). Prior MI, its anterior location, and higher levels of CPK were considered indicative of more severely impaired left ventricular function. These variables were controlled for when the associations among the study variables were examined.

Perceived severity. Perceived threat was assessed by a five-item self-report questionnaire designed for the current study tapping the perceived severity of the MI (ie, Were you under the threat of death? Is your illness severe?). Respondents were asked to respond to each item on a four-point Likert scale. Mean score reflects the level of the subject's perceived threat. Cronbach alpha for the total score was 0.61.

Stanford Acute Stress Reaction Questionnaire. This self-report questionnaire (43) consists of 28 items, describing dissociative, intrusive, avoidant, and hyperarousal symptoms. Respondents were asked to rate, on a six-point Likert scale, ranging from (zero) "not experienced" to (five) "very often experienced," the extent to which they suffered from each of the symptoms in response to the MI.

Based on the DSM-IV (6), subjects were identified as having clinical ASD according to the following criteria: 1) having experienced a traumatic event in the previous month; 2) endorsement of at least three highly rated (3–5) dissociative symptoms; 3) at least one highly rated (3–5) intrusive symptom; 4) at least one highly rated (3–5) avoidant symptom; and 5) at least one highly rated (3–5) hyperarousal symptom. Following Harvey and Bryant (8), subjects who endorsed the requisite number of symptoms in three of the four categories (criteria 2–5) were designated as having subclinical ASD. In addition, this scale assesses the severity of ASD, which is calculated as the mean total score.

This questionnaire has been used to assess ASD in various populations (7) and possesses high test-retest reliability (43). The Cron-

TABLE 1. Distribution of Sociodemographic Variables According to Study Group

	MI Patients		Control		χ^2
	No.	%	No.	%	
Gender					
Men	94	81.0	51	70.8	2.62
Age (yr)					
≤ 40	4	3.4	1	1.4	4.49
41–50	31	26.7	28	38.9	
51–60	49	42.3	30	41.7	
61–70	32	27.6	13	18.0	
Country of birth					
Israel	52	44.8	46	64.8	7.71*
Asia/Africa	27	23.3	8	11.3	
Europe/America	37	31.9	17	23.9	
Education					
<12 years	30	26.5	12	17.4	2.04
12 years	33	29.2	22	31.9	
>12 years	50	44.3	35	50.7	
Income (related to the average)					
Much lower	9	8.3	4	5.8	6.63
Lower	12	11.0	6	8.7	
Average	36	33.0	13	18.8	
Higher	35	32.1	29	42.0	
Much higher	17	15.6	17	24.7	
Marital status					
Married	98	84.5	64	88.9	0.72

* $p < .05$.

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bach alpha for the current sample was high (0.93), indicating high internal consistency.

PTSD Inventory. PTSD was measured by the PTSD Inventory (44), a self-report scale based on the DSM-IV (6). The scale consists of 17 items describing intrusive, avoidant, and hyperarousal symptoms. Subjects were asked to indicate whether they had experienced each symptom “during the last month,” specifically in response to the MI.

Based on the DSM-IV (6), subjects were identified as having clinical PTSD according to the following criteria: 1) having experienced a traumatic event any time in the past (again, MI was considered a traumatic event); 2) endorsement of at least one intrusive symptom; 3) at least three avoidant symptoms; and 4) at least two hyperarousal symptoms. After Blanchard et al. (45), subjects who met the intrusive criterion 2 as well as either criterion 3 or 4 were designated as having subclinical PTSD. This scale also assesses the severity of PTSD, which is calculated as the number of symptoms endorsed.

This questionnaire has been used to assess PTSD in other populations, including MI patients (11). Internal consistency in the current sample was high (0.84). The scale was found to have a high convergent validity when compared with diagnoses based on structured clinical interviews: specificity of the PTSD Inventory was high (94%), and rates of false-negative and false-positive were low (11% and 5%, respectively) (44).

Repressive Coping Scale. This self-report questionnaire (17) combines two scales: manifest anxiety (Taylor Manifest Anxiety Scale) (46) and defensiveness (the Marlow-Crowne Social Desirability Scale) (47). The questionnaire consists of 58 items describing various attitudes and reactions. Respondents are asked to indicate whether or not each item describes them.

Repressive coping style was determined by the median scores on the two scales (Taylor Manifest Anxiety Scale, 1.26; Marlow-Crowne Social Desirability Scale, 1.64): Respondents whose anxiety score was lower than the median and defensiveness score was higher than the median were classified as repressors. The scale was designed to identify three categories of nonrepressors: low-anxious individuals (whose anxiety and defensiveness scores were both lower than the median); high-anxious individuals (whose anxiety score was higher than the median and defensiveness score lower than the median); and defensive individuals (whose anxiety and defensiveness scores were both higher than the median). The analyses refer to both the dichotic distinction (repressors vs. nonrepressors) and the four-category classification (repressors, low-anxious, high-anxious, and defensive).

The validity of the combination of anxiety and defensiveness as reflecting repressive coping style received considerable support (18, 48). The Cronbach alpha for the current sample was high, both for the Taylor Manifest Anxiety Scale (0.82) and the Marlow-Crowne Social Desirability Scale (0.78). In the current sample, test-retest reliability of both scales, as measured within an interval of 7 months, indicated a considerable stability of these scales ($r = .66, p < .001$ for the Taylor Manifest Anxiety Scale; $r = .64, p < .001$ for the Marlow-Crowne Social Desirability Scale).

Procedure

The data on the MI patients was gathered in two waves. The first assessment (time 1) was conducted in the hospital, and the second assessment (time 2) was in the patients' homes. At time 1, sociodemographic variables, perceived severity of MI, ASD, and repressive coping style were measured. In addition, clinical measures were gathered from the patients' hospital records. At time 2, PTSD was assessed. The control subjects filled out questionnaire regarding

sociodemographic variables, ASD, and repressive coping style in their homes. The study was started after institutional Helsinki committees approved the research design. Informed consent was obtained from all subjects at the first assessment.

RESULTS

The results are presented in the following order. First, the distribution of repressive coping style among MI patients is presented and compared with that among the control subjects. In addition, the relation between repressive coping style and sociodemographic variables and the objective and perceived severity of MI is assessed. Second, the association between repressive coping style and ASD is examined. Finally, the unique contribution of repressive coping style, as measured at time 1, to PTSD, measured at time 2, beyond the contribution of ASD is assessed. Because no one in the control group reported having experienced a traumatic event in the previous month, none were classified as having ASD, whereas 7% of the control subjects were identified as having current PTSD. The last two sections refer only to MI patients.

Repressive Coping Style

Of the MI patients, 24.8% ($N = 28$) of patients were classified as repressors, and the remaining were classified as nonrepressors: 17.7% ($N = 20$) low-anxious, 31.9% ($N = 36$) high-anxious, and 25.7% ($N = 29$) defensive. Of the control subjects, 29.2% ($N = 21$) were classified as repressors, and the remaining were classified as nonrepressors: 31.9% ($N = 23$) low-anxious, 29.2% ($N = 21$) high-anxious, and 9.7% ($N = 7$) defensive. A chi-square analysis indicated that the percentage of repressors in the two groups was not significantly different ($\chi^2 = 0.44; df = 1; NS$).

A series of analyses indicated that repressive coping style was not associated with gender ($\chi^2 = 0.40; df = 1$), age ($t(183) = 1.98$), education ($\chi^2 = 0.98; df = 2$), income ($t(174) = 0.38$), or number of traumatic events before the MI ($t(183) = 0.27$).

Nor was repressive coping style related to any of the clinical measures of the severity of the MI—type of MI ($\chi^2 = 3.41, df = 3$), first/recurrent MI ($\chi^2 = 1.66, df = 3$), and level of CPK ($F(3,101) = 1.22$)—or to the perceived severity of the MI ($F(3,111) = 1.71$). Finally, a series of two-way analyses of variance with perceived severity of MI as the dependant variable and repressive coping style and each of the clinical measures of severity of MI as independent variables yielded no significant interactions with the occurrence of previous MI ($F(3,109) = 0.75$), type of MI ($F(3,107) = 1.42$), or level of CPK ($F(3,102) = 0.93$), indicating that the association between the objective and perceived sever-

ity of MI was similar among repressors and nonrepressors.

Repressive Coping Style and ASD (Time 1)

First, we examined the relation between repressive coping style and ASD. Chi-square analysis yielded a significant effect ($\chi^2 = 24.53$; $df = 6$; $p < .001$). Table 2 presents the distribution of ASD by repressive coping style. As can be seen, only 3.6% of the repressors and none of the low-anxious subjects were classified as having clinical ASD, compared with one fifth (20.7%) of the defensive and more than third (36.1%) of the high-anxious subjects. Among the non-ASD subjects, there was a low proportion of high-anxious (36.1%), more than half of the defensive (58.6%), and the majority of the repressors (82.1%) and the low-anxious (90.0%) subjects.

One-way analysis of variance, conducted to examine the association between repressive coping style and the severity of ASD, yielded a significant effect ($F(3,108) = 9.60$; $p < .001$). Scheffe contrasts, computed to ascertain the source of the group difference, indicated that repressors (mean = 0.56; SD = 0.61) and low-anxious subjects (mean = 0.54; SD = 0.40) reported lower levels of ASD than high-anxious (mean = 1.43; SD = 0.96) and defensive (mean = 1.17; SD = 0.85) subjects.

Finally, to examine the associations between repressive coping style and each of the ASD symptom categories, a series of correlations was conducted, revealing significant relations between repressive coping style and dissociation ($r = -0.31$; $p < .001$), avoidance ($r = -0.19$; $p < .05$), and hyperarousal ($r = -0.30$; $p < .001$). That is, repressors reported lower levels of dissociation, avoidance, and hyperarousal than nonrepressors.

To examine the unique contribution of repressive coping style to the severity of ASD among MI patients, beyond the contribution of sociodemographic vari-

ables and the objective and perceived severity of MI, we conducted a hierarchical regression analysis. The pre-MI variables, namely sociodemographic variables (gender, age, level of education, and income) and number of traumatic events before the MI were entered in the first step. The perceived threat and the clinical variables reflecting the objective severity of MI (first/recurrent MI, level of CPK, and type of MI) were entered in the second step. Repressive coping style (repressors vs. nonrepressors) was entered in the third step. The dependant variable was ASD severity.

The regression model explained 20% of the variance of the severity of ASD ($F(3,97) = 8.82$; $p < .001$). In the first step, only number of prior traumatic events made a significant contribution to severity of ASD. This variable was positively associated with the severity of ASD ($B = 0.11$, $SD = 0.05$, $\beta = 0.21$, $p < .05$) and explained 5% of its variance. The perceived threat of the MI, entered in the second step, added 10% to the explained variance ($B = 0.39$, $SD = 0.12$, $\beta = 0.30$, $p < .01$). None of the medical variables that indicated the objective severity of the MI made a significant contribution to the variance of ASD. Finally, repressive coping style made a unique contribution to the variance of ASD (5%): repressors reported less severe ASD than nonrepressors ($B = 0.46$, $SD = 0.18$, $\beta = 0.23$, $p < .05$).

Repressive Coping Style and PTSD (Time 2)

Chi-square analysis, conducted to examine the relation between repressive coping style, measured at time 1, and PTSD at time 2 yielded a significant effect ($\chi^2 = 18.90$; $df = 6$; $p < .01$). Table 2 presents the distribution of PTSD by coping style. As can be seen in Table 2, only 7.1% of the repressors were classified as having clinical PTSD, compared with 20.0% of the low-anxious, 17.2% of the defensive, and 19.4% of the high-anxious subjects. The subjects who were classified as non-PTSD included 82.1% of the repressors, 70.0% of

TABLE 2. Distribution of ASD and PTSD According to Repressive Coping Style

	Repressors		Low-Anxious		High-Anxious		Defensive	
	No.	%	No.	%	No.	%	No.	%
ASD								
Clinical ASD	1	3.6	0	0.0	13	36.1	6	20.7
Subclinical ASD	4	14.3	2	10.0	10	27.8	6	20.7
Non-ASD	23	82.1	18	90.0	13	36.1	17	58.6
PTSD								
Clinical PTSD	2	7.1	4	20.0	7	19.4	5	17.2
Subclinical PTSD	3	10.7	2	10.0	16	44.4	11	37.9
Non-PTSD	23	82.1	14	70.0	13	36.1	13	44.8

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the low-anxious, 36.1% of the high-anxious, and 44.8% of the defensive.

One-way analysis of variance, conducted to examine the association between repressive coping style and the severity of PTSD, yielded a significant effect ($F(3,112) = 5.28; p < .01$). Scheffe contrasts, computed to ascertain the source of the group difference, indicated that repressors (mean = 2.57; SD = 2.74) reported lower levels of PTSD than high-anxious (mean = 5.72; SD = 3.43) and defensive (mean = 5.48; SD = 3.19) subjects. Low-anxious MI patients did not differ significantly from the other three groups (mean = 3.90; SD = 4.75).

To examine the associations between repressive coping style and each of the PTSD symptom categories, a series of correlations was conducted, revealing significant relations between repressive coping style and avoidance ($r = -0.25; p < .01$) and hyperarousal ($r = -0.31; p < .001$). That is, repressors reported lower levels of avoidance and hyperarousal than nonrepressors.

Finally, we conducted a hierarchical regression analysis to examine the unique contribution of repressive coping style to severity of PTSD among MI patients, beyond the contribution of sociodemographic variables, severity of MI, perceived threat, and ASD. This regression consisted of the same steps as the one described above, with the addition of the severity of ASD in the third step, before repression. The dependent variable was PTSD severity.

Table 3 presents the results of the regression. As can be seen, the regression model explained 25% of the variance of severity of PTSD ($F(4,97) = 9.07; p < .001$). Level of education and number of traumatic events explained 9% of the variance of PTSD. Level of education was negatively associated with severity of PTSD, and number of prior traumatic events was pos-

itively associated. Neither the medical variables indicating the objective severity of the MI nor the subjectively perceived threat made a significant contribution to the variance. The severity of ASD added 12% to the explained variance of PTSD; the more severe the ASD, the more severe the long-term PTSD. In the third step, as ASD entered the regression model, the contribution of traumatic events to PTSD became insignificant. Finally, repressive coping style made a unique contribution to the variance in PTSD (4%), beyond that of the other variables; repressors reported less severe PTSD than nonrepressors.

DISCUSSION

The findings of this study suggest that repressive coping style may promote adjustment to traumatic stress, both in the short and longer term. ASD rates, assessed within the first week of the subjects' MI, were lower among repressors (3.6%) than among defensive (20.7%) and high-anxious MI patients (36.1%). Similarly, only 7.1% of repressors were identified as having clinical PTSD 7 months after their MI, compared with between 17.2% and 20.0% of the nonrepressors. The same trend was observed with respect to the severity of the ASD and PTSD. As indicated by the regression analysis, repressive coping style made a unique contribution to the severity of PTSD beyond that of the severity of any preceding ASD.

Several possible conjectures may be offered to explain the adaptive role of the repressive coping style. One is that repressors are protected by their primary appraisal of stressful events (49), that is, by the way in which they perceive and interpret threatening cues. According to previous studies, repressors are more likely than others to divert attention from threatening stimuli (50), recall fewer details of stressful experi-

TABLE 3. Regression Model for PTSD Severity

	B	SE	β	Adjusted R ²	Accumulative R ²
First step					
Education	-1.06	0.43	-0.24*		
Traumatic events	0.54	0.23	0.23*	0.09	0.09
Second step				—	0.09
Third step					
Education	-0.81	0.41	-0.18*		
Traumatic events	0.32	0.22	0.14		
ASD	1.64	0.41	0.38***	0.12	0.21
Fourth step					
Education	-0.89	0.40	-0.20*		
Traumatic events	0.32	0.21	0.14		
ASD	1.35	0.41	0.31**		
Repressive coping style	1.86	0.79	-0.22*	0.04	0.25

* $p < .05$; * $p < .01$; *** $p < .001$.

ences (51), and remember fewer negative events (52). These findings suggest that repressors may be less prone to develop traumatic stress disorders after MI because they employ selective attention during and after their MI and, thus, perceive it as less threatening than nonrepressors. However, this explanation is countered by the findings of the current study, which show that the repressors in our sample did not differ from the nonrepressors in their reality perceptions. That is, there was no significant difference between the repressors' and nonrepressors' perceptions of the severity of their MI or their interpretation of their medical state. These findings are consistent of those reported by Tomaka et al. (53) that repressive coping style was not associated with repressors' primary appraisal during a stressful laboratory task.

Another conjecture is that the difference in adjustment may stem from differences in the secondary appraisal process, that is, from the patients' perception of their ability to cope with the threat. Prior studies report that repressors tend to perceive themselves as competent, self-controlled, and having adequate coping skills (18, 51). According to Lazarus and Folkman (49), positive secondary appraisal promotes adjustment to threat.

A third possibility relating to the role of self-esteem in adjustment to stress (54) is that persons with a repressive coping style are protected by their perception of themselves in general. Weinberger (18) maintains that the major motive for the repressive coping style is to maintain a positive self-image. Various findings suggest that repressors do have a more positive self-image than others in that they tend to attribute to themselves fewer negative and more positive descriptions than nonrepressors (21, 22, 24).

Yet a fourth possibility may be that the repressors were shielded from the detrimental stress of their MI by their optimism. Myers and Brewin (24) found that repressors are more inclined to unrealistic optimism than nonrepressors: they tend to perceive the likelihood of negative events as lower and the likelihood of positive events as higher. Various studies point on the adaptive role of optimistic illusions as promoting well-being (55).

The present study also found that the severity of the subjects' ASD and PTSD was not affected by the severity of their MI, but that it was associated with their subjective perception of threat. This finding is consistent with findings on casualties of other traumas, which similarly showed that perceived threat predicted stress reactions (56) and that the severity of injury did not (57). These findings suggest that perceived threat is more important than objective threat in determining an individual's adjustment to stress. It

should be kept in mind, however, that it is possible that the medical measures had no impact because the patients may not have been aware of the severity of their MI, either because they were not given sufficient information or because they did not understand the information they received.

Several reservations may be made about this study. Two of them stem from the operationalization of repressive coping style as a combination of anxiety and defensiveness. Although this operationalization has been consistently validated (18, 58) and is considered the most acceptable of various alternatives (48), one cannot ignore the inherent difficulties in inferring unconscious mechanisms from self-reports. The first reservation refers to the repressors' level of anxiety. The measure of repressive coping style is based on the assumption that repressors are not nonanxious, but rather employ repressive defenses because of their inability to confront their anxiety. This assumption has been supported by various studies showing that repressors, who report low levels of anxiety, actually manifest high levels, as indicated by various physical and behavioral measures, such as muscle tone, heart rate, blood pressure, and facial expressions (17, 59–62). From these findings, it seems that repressors are best characterized not by their low level of reported anxiety, but by the dissociation between the workings of their autonomic system, which reflects their level of arousal, and their cognitive system, which interprets their emotional state (18).

The second reservation relates to the extent to which the repressors' reporting reflects actual defensiveness. Some authors (63) suggest that defensiveness is a combination of two factors: impression management and self-deception. Whereas self-deception represents an intrapsychic process associated with defensiveness, impression management reflects the motivation to present oneself in a positive manner, rather than real defensiveness. However, there is considerable evidence that repressive coping style represents more than a motivation to present a positive image. The major supports for this view are findings that repressors' avoidance is uncontrolled (20) and is manifested not only in their self-reports, but also by measures of automatic behavior and cognitions (50) or reaction time (52).

In the same vein, the fact that the assessments of ASD and PTSD were via self-report questionnaires should be taken into account. Although the use of self-report scales to assess ASD and PTSD is prevalent (64), a structured clinical interview is needed to determine a diagnosis. Moreover, although the subjects were asked to rate the severity of the MI, their perception of the event as traumatic, ie, provoking intense

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fear, helplessness, or horror, as specified by the DSM, was not directly assessed. The measure of history of trauma is similarly limited. MI, or other stressful events, are not necessarily perceived as traumatic by those who experience them (for more detailed discussion of problems in evaluating traumatic events, see Ref. 65).

Another limitation of this study is in the timing of the assessment of repressive coping style. The study was designed to avoid the confounding between PTSD and repressive coping that marred previous studies. Yet although we were able to measure repressive coping style before the measure of PTSD, we were not able to measure it before the identification of ASD. Because repressive coping style was measured immediately after the MI, simultaneously with the measure of ASD, it is impossible to know for sure whether it impacted on or resulted from the ASD. However, comparison of the distribution of repressive coping style in the MI group and the matched control subjects revealed no significant difference, supporting the assumption that it was a prior personality trait. Finally, this study is limited by the size of the sample. To validate the contribution of repressive coping style to adjustment after traumatic stress, these results should be replicated in larger sample.

The findings of the study should be considered in the broader context of the question of what is a well-adjusted personality. As suggested by Weinberger (18), the view of repressive coping style as adaptive accords with cognitive and behavioral conceptions, which define well being and adjustment as effective problem solving in stressful situations (66). This view contrasts with the analytic and humanistic perspectives, which emphasize the value of the individual's struggle to understand and integrate internal and external realities, even at the price of pain and distress, and which view repressive coping as reflecting an idealized, unauthentic, and false self (eg, Ref. 67). This issue relates to the current dispute between adherents of "positive psychology" (68), who promote the value of positive thinking, optimism, illusions, and self-control in fostering physical and mental health, and those who doubt the authenticity and adaptiveness that is given to these elements (69, 70). Because these issues are still in dispute, further research is needed to examine the arguments.

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