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The Relationship between Terrorism and Distress and Drinking: Two Years after September 11, 2001*

Judith A. Richman, Ph.D., Candice A. Shannon, M.A., and Kathleen M. Rospenda, Ph.D.

Department of Psychiatry University of Illinois at Chicago

Joseph A. Flaherty, M.D.

Dean, College of Medicine University of Illinois at Chicago

Michael Fendrich, Ph.D.

Center for Addiction & Behavioral Health University of Wisconsin, Milwaukee

Abstract

This study examined: 1) the prevalence of negative beliefs related to terrorism and 2) whether these beliefs were related to distress and drinking. Respondents in a longitudinal cohort study sampled from a United States university workplace were surveyed by mail between 1996 and 2003. Instruments assessed: negative beliefs related to 9/11/01, distress (depression, anxiety, somatization, PTSD-post-traumatic stress disorder), and drinking (frequency, quantity, escapist motives, binge drinking, drinking to intoxication, and problem-related drinking). Regression analyses examined relationships between beliefs and mental health. A sizable percentage of respondents experienced terrorism-related negative beliefs. Higher negative belief scores were related to greater distress and problematic drinking in 2003, controlling for sociodemographic variables and (in most cases) pre-9/11 distress and drinking. Study limitations were noted and future research was recommended.

Keywords

alcohol consumption; communal bereavement; terrorism; beliefs; distress; drinking

Thomas Friedman (2004), New York Times American journalist and political commentator, in his writings on the salience of fears of terrorist attacks during the 2004 American presidential election, lamented: "I dream of going back to the days when terrorism was just a nuisance in our lives". A sizable literature has demonstrated that the attacks on 9/11/01 adversely affected the mental health of individuals across the nation (Richman, Wislar, Flaherty, Fendrich, & Rospenda, 2004; Schuster et al., 2001; Schlenger, Caddell, Ebert, Jordan, & Rourke, 2002; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002) as well as those most directly affected in the communities surrounding the attack locales in New York, Washington, D.C. and Pennsylvania (Centers for Disease Control, 2001; Simeon, Greenberg, Knutelska, Schmeidler, & Hollander, 2003; Cardenas, Williams, Wilson,

*Address correspondence to: Department of Psychiatry (m/c 912), University of Illinois at Chicago, 1601 W. Taylor St. Chicago, IL 60612. jrichman@psych.uic.edu; phone: 312-413-4527. .

Fanouraki, & Singh, 2003). These empirical studies conducted in the immediate or recent aftermath of 9/11/01 demonstrated elevated symptoms of depression, anxiety, posttraumatic stress disorder and increased alcohol consumption. Subsequent studies conducted between two months (Stein et al., 2004) and six months (DeLisi et al., 2003; Vlahov, Galea, Ahern, Resnick & Kilpatrick, 2004) following 9/11/01 demonstrated lingering feelings of distress and increased use of alcohol and other substances including cigarettes and marijuana compared to the period before 9/11/01. Apart from feelings of distress and increased substance use, research also showed that individuals manifested positive coping responses such as making charitable donations (Marshall and Galea, 2004). It should also be noted that research on drinking outcomes has been more limited compared with other manifestations of distress, and one national study of an employed population in the recent aftermath of 9/11/01 showed decreased alcohol consumption. Moreover, the expected number of drinks was 29% less than the alcohol consumption of the pre-September 11th group (Knudsen, Roman, Johnson, & Ducharme, 2005).

The extent to which the relatively immediate mental health effects of 9/11 found in most studies have lingered over a much longer period is just beginning to be addressed. For example, Boscarino, Adams and Galea (2006) found that exposure to psychological trauma related to the World Trade Center Attack in New York City was associated with greater alcohol consumption two years after the attack. In addition, beyond the lingering effects of the events of 9/11, terrorism may be viewed as more than a discrete fateful traumatic event, but also, as a symbol of newer types of macro-level threats continuing into the present. In particular, 9/11 constitutes a concrete symbol representing major subsequent threats to people's existence and wellbeing. Thus, it is of major psychiatric epidemiologic importance to document subsequent perceptions of threats of terrorism and their impact on mental health status. As Marshall and Galea (2004) suggested, "the attack seemed to provoke a profound uncertainty about the future, undermine assumptions about personal safety, and evoke a new sense of vulnerability for the nation as a whole" (p. 38). Moreover, this sense of uncertainty may be heightened within the context of Western society which especially highlights cultural values involving expectations of control and predictability.

This paper utilizes data from a five wave longitudinal workplace cohort study to address respondents' views of the psychosocial consequences of the experience of 9/11/01 and fears of future terrorist attacks as assessed in the fall of 2003. Moreover, since wave 1 of this study was initiated in 1996, we were able to address changes in mental health related to perceptions of terrorism in so far as we could utilize, for most outcomes, pre-9/11 mental health status as control variables and thus take into account pre-existing psychopathology, in contrast to many studies which were initiated after 9/11/01.

Our study is derived from the stress paradigm (Pearlin, Lieberman, Menaghan, & Mullen, 1981) which links psychosocial stressors to distress and drinking outcomes. In particular, a large body of research has shown relationships between the experience of life event and chronic hassle stressors and a variety of negative psychological states (Ensel & Lin, 1991). In this case, we focus on the events of 9/11/01, subsequent threats of terrorism, and their lingering relationship with mental health status. In addition, our study embraces Catalano and Hartig's (2001) notion of "*communal bereavement*," involving reactions to losses by

societal members who did not have direct relationships with deceased individuals. As they noted, and Knudsen and colleagues (2005) elaborated, these loss issues are related to notions that social institutions such as the state are unable to provide a sense of safety for their citizens. In the Catalano and Hartig study (2001), they empirically demonstrated a rise in the incidence of very low birthweight in the months following the murder of Prime Minister Olof Palme in Sweden in 1986, controlling for other relevant variables. Furthermore, they drew on the work of Clayton (2000), theorizing that stress was the mechanism connecting bereavement to negative outcomes.

Given evidence that the more immediate psychological impact of 9/11 was more detrimental for women compared to men (Richman et al., 2004; Cardenas et al., 2003; Stein, et al., 2004), an important question involves the extent to which this gender difference persists or diminishes over a longer time frame.

Method

Sampling and Data Collection

Data were obtained from an ongoing longitudinal mail survey of employees initially selected from an American Midwestern urban university during the fall semester of 1996, with the first author as principal investigator of this study and the other authors as collaborators at various stages of the study. Participants were initially solicited for a study of the perceived quality of work conditions including experiences of workplace harassment and generalized abusive experiences at work, the ways in which people coped with negative workplace experiences including use of support networks and mental health service utilization, personality traits, and outcomes involving psychological distress and the use and misuse of alcohol to cope with negative workplace experiences. For a description of the main foci of interest and key earlier findings, see: Richman et al., 1999; Richman, Rospenda, Flaherty and Freels, 2001; Wislar, Richman, Fendrich and Flaherty, 2002, and Rospenda, Richman and Shannon, in press).

The sample was stratified by gender and occupation into eight strata. Initial wave 1 occupational groups included: faculty, graduate student workers/trainees, clerical/secretarial workers, and service/maintenance workers. Employees (2416 men and 2416 women) were sampled from the university payroll database, and the questionnaire was pretested on a small sub-sample of the eligible population prior to initiation of the main study. Data collection encompassed Dillman's total design method for mail surveys (Dillman, 1978), but additional follow-up strategies were utilized as well (supplementary reminder postcards, two additional mailings, reminder e-mail messages, and follow-up phone calls). Respondents were compensated for their time and effort (\$20 at waves one and two and \$30 at waves three through 5) and consented to participate in the study by their choice of filling out and returning the survey questionnaire. The final wave 1 sample comprised 2492 employees (response rate = 52%). The lower than desired response rate is reflective of questionnaires which were self-administered and contained highly sensitive material and identifiers for subsequent tracking (Sudman & Bradburn, 1984). However, comparison of the sample with known characteristics of the total population indicated no significant differences in terms of race within each occupational stratum. Gender differences between this sample and the total

population were also very small and insignificant for two of the four strata (service workers and student trainees). Males, however were over represented by 8.3 percentage points within the clerical group, and females were over represented by 11.3 percentage points in the faculty group (Richman et al., 1999).

One year later (during the fall semester of 1997), the wave 1 respondents were resurveyed, producing a sample of 2038 employees, with an 82% retention rate. Three years later (during the fall semester of 2001), the sample was again surveyed, producing a sample of 1730, with a 70% retention rate of eligible living respondents from the wave 1 survey.

Since some wave 3 respondents returned the survey pre-9/11 and other respondents returned the survey post-9/11, this data set provided the means to assess the effect of exposure to 9/11 on mental health and drinking outcomes. The data showed that exposure to 9/11 was significantly related to higher quantity of alcohol consumption, controlling for baseline drinking, for women but not for men. Moreover, the interaction of exposure to 9/11 coupled with chronic workplace stressors (low decision latitude and experiences of sexual harassment and generalized workplace abuse) predicted quantity of alcohol consumed, escapist motives for drinking and anxiety in women, though not in men (Richman et al., 2004). These findings led us to the decision to enlarge the scope of the study at wave 5 to further address the post 9/11 period, with this paper constituting our first report focused on the continuing effects of 9/11.

Wave 4 data were collected similarly during the fall of 2002, producing a sample of 1,654 (with a 67% retention rate of eligible living respondents from the wave 1 survey). Finally, wave 5 data were collected similarly during the fall of 2003, producing a sample of 1,453 (with a 59.1% retention rate of eligible living respondents from the wave 1 survey). Of the eligible living respondents (10 from the original wave 1 sample were deceased), 18 refused to participate, 209 constituted the “unable to locate” group, and 778 failed to return the questionnaire after several mailings and follow-up phone calls. The student worker group was over-represented in the “unable to locate” group compared to the other occupational groups. Because wave 5 respondents’ job statuses varied in terms of whether they were still employed in their original university jobs or were employed at other positions outside the university or were retired, we did not carry out comparisons between the sample and the general university population.

Along with questionnaires, respondents were sent a “Consent Information Form” describing the study and outlining risks, benefits, and information on who to call for further information about participation in the study. Informed consent was assumed when respondents chose to complete and return the survey. The study was approved by the university Institutional Review Board (IRB). While most respondents did not directly benefit from participation in the study, responses to an open-ended question at the end of the questionnaire suggested a number of positive effects for some respondents from their participation including: 1) having been given the ability to reflect on aspects of their lives, 2) being able to make a contribution toward the greater good of society and 3) realizing that it would be helpful to seek out mental health services to deal with their distressful feelings.

Table 1 presents the sociodemographic characteristics and scores on the major variables for the wave 5 respondents. Wave 5 completers (i.e., those who completed the wave 5 survey), compared to the initial sample, were more likely to be older (mean age 42 vs. 38 years, $P < .001$) and White (59% vs. 13% Asian, 21% African American, 6.4% Hispanic, $P < .001$) than non-completers. In addition (though not shown in the table), we can note that completers were significantly more likely to be faculty members and less likely to be in the student worker group. In terms of mental health characteristics, wave 5 completers did not differ significantly from non-completers in levels of anxiety, hostility and most measures of alcohol consumption at wave 1 (frequency and quantity of consumption, escapist motives for alcohol use, binge drinking and drinking to intoxication). However, wave 5 completers were less depressed (3.6 vs. 4.0 depression score, $P < .05$), and were less likely to manifest problem-related drinking than noncompleters (1.30 vs. 1.53 problem drinking score, $P < .05$) at wave 1.

Measures

Terrorism-related stressors were measured by twelve items (see table 2) assessing negative beliefs about the world, other people and oneself which were specifically linked with 9/11 and fears of future terrorist attacks, with a scale range of 12 to 60. This instrument is a modified version of the Psychosocial Resources Losses developed by Fran H. Norris (2001) for the National Institute of Health, Office of Behavioral and Social Science Research. It was based upon previous findings from disaster research which delineated declines in perceived support, social embeddedness, coping self-efficacy, and optimism. The alpha coefficients were .82 for both women and men.

In terms of mental health, we assessed symptomatic distress (depression, anxiety, hostility, somatization, and post-traumatic stress disorder symptoms linked with 9/11 and threats of future terrorist attacks) and alcohol consumption-related behaviors (frequency of consumption, quantity of consumption, escapist motives for drinking, binge drinking, drinking to intoxication, and problem-related drinking). Pre-9/11/01 baseline measures were available as control variables for all outcomes except for terrorism-related post-traumatic stress disorder (PTSD symptoms) and somatization which were added to the wave 5 questionnaire.

Depressive symptomatology occurring during the past week was measured by 7 items from the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) which were shown to correlate highly with the overall scale (Mirowsky & Ross, 1990). It has a scale range of 0 to 21. Alpha coefficients were .86 for both women and men. Anxiety during the past week was measured by the 9 item tension-anxiety factor of the Profile of Mood States (McNair, Lorr, & Droppleman, 1981), with a scale range of 0 to 36. Alpha coefficients were .88 for women and .89 for men. Hostility during the past week was measured by the 6 item hostility dimension of the SCL-90-R (Derogatis, 1983), with a scale range of 0-22. Alpha coefficients were .77 for women and .78 for men. Somatization during the past week was measured by the 12 item somatization factor of the SCL-90-R (Derogatis, 1983), with a scale range of 0 to 48. Alpha coefficients were .82 for women and .85 for men. Terrorism-related PTSD symptoms were measured by an adapted version of the PCL-T (PTSD Checklist-terror), a 17

item instrument that captures the criteria for the DSM IV diagnosis of PTSD and is scored here as a continuous variable with a scale range of 17 to 85. This measure was obtained from the website containing the Negative Beliefs measure and other measures recommended by NIH for use in 9/11-related research (Norris, 2001). We broadened the instructions for completing the instrument to capture symptoms related to terrorist-related experiences and fears of terrorism since 9/11 and foreign wars or the threat of future wars. The alpha coefficients were .90 for women and .91 for men.

In terms of alcohol consumption-related outcomes, for drinking quantity, respondents were asked: "When you drank any alcoholic beverage during the last thirty days, how many drinks did you usually have per day?" For drinking frequency, respondents were asked: "During the last thirty days, about how many days did you drink any type of alcoholic beverage?" Escapist drinking motives were assessed by five items from the Temple instrument (Temple, 1986): to feel less tense, to escape, to cheer up, to forget things and to forget worries. The alpha coefficients were .89 for women and .86 for men. Binge drinking was measured by the Wilsnack, Klassen, Schur, and Wilsnack (1991) question: "During the last 12 months, how often did you have 6 or more drinks of wine, beer or liquor in a single day? (That would be a bottle or more of wine, more than 2 quarts of beer or a half pint or more of liquor)". Drinking to intoxication was measured by the Wilsnack et al. (1991) question: "About how often in the last 12 months did you drink enough to feel drunk, that is, where drinking noticeably affected your thinking, talking and behavior?" Problem-related drinking was assessed by a past year version of the Michigan Alcohol Screening Test or MAST (Selzer, 1971), a 24 item instrument screening for alcohol abuse or dependence. The alpha coefficients were .57 for women and .72 for men.

Statistical Analyses

First, we examined the distribution of responses to each item in the negative beliefs instrument, contrasting the extent to which respondents experienced each aspect as: 1. Not/A little, 2. Somewhat or 3. Very/Extremely. Since a t-test contrasting men and women showed no significant difference between them on the overall scale, we show the distributions for men and women combined. Secondly, we conducted linear regression analyses which examined the main effect of negative beliefs on each mental health outcome, controlling for education, race/ethnicity, age, gender and baseline mental health (except in the case of PTSD and somatization, which were only assessed at wave 5). We initially tested for an interaction between negative beliefs and gender on mental health outcomes, but since there were no gender differences, gender was entered as a control variable.

Results

Table 2 presents the distribution of negative perceptions of the world and self perceived to result from 9/11/01 and fears related to future terrorist experiences. The data show that the impact of terrorism has primarily involved perceptions of the world as being a less safe place and the government being less effective in contrast to other items tapping negative interpersonal relationships or feelings of personal failure in response to 9/11. For example, 29.8% of the sample felt that it was very or extremely true that they felt more pessimistic

about world peace. By contrast, only 1.4% of the sample felt that it was very or extremely true that they were disappointed in themselves at the time of the crisis.

Main Effects of Negative Beliefs on Mental Health Outcomes

Ordinary least-squares regression analyses were conducted to explore the relationships between negative beliefs and mental health. To examine the main effect of negative beliefs on symptomatic distress, hierarchical entry of variables was used, controlling (in step 1) for age, gender, race, education and baseline mental health (except for somatization and PTSD which were only measured at wave 5), and adding negative beliefs in step two. Table 3 shows the significant mental health outcomes linked with negative beliefs and the extent to which these beliefs negatively relate to distress, controlling for sociodemographic variables and baseline mental health. While the tables note the relationships between socio-demographic control variables and each outcome (addressed in step one), our main interest here lies in the relationship between negative beliefs and outcomes when the other factors are taken into account (addressed in step two). The data showed that negative beliefs were associated with significantly increased ($p < .001$) symptoms of depression, anxiety, hostility, somatization, and PTSD. Negative beliefs also were significantly associated with an increase in two of the six drinking patterns assessed: binge drinking ($p < .05$) and escapist motives for drinking ($p < .01$). While these relationships are limited to correlations in terms of somatization and PTSD, the other forms of distress (depression, anxiety and hostility) and drinking might suggest a possible causal linkage with terrorism-related negative beliefs since the effect of prior mental health status was partialled out.

Discussion

Congruent with Friedman's (2004) commentary in the New York Times, fears of future terrorist acts in the United States and negative feelings about personal safety appeared to have remained pressing issues for Americans. However, empirical studies to date have primarily depicted increased psychological distress and substance use in most but not all studies in the relatively immediate aftermath of the terrorist attacks on September 11, 2001. By contrast, this study demonstrates that a sample of Americans experienced negative views of the world and their own safety continuing over a longer, two-year, time period. Moreover, these negative views of the world were linked with increased levels of depression, anxiety, hostility, binge drinking, and escapist motives for drinking, controlling for symptomatology and drinking patterns prior to 9/11/01. They were also shown to relate to somatization and PTSD-related symptomatology, though these outcomes were only measured at the same wave.

The outcomes assessed in this study involved symptomatic distress and problematic drinking patterns and motives rather than clinical DSM-IV diagnoses. However, as Amsel and Marshall (2003) noted, many New York City patients entering their trauma clinic in the year following 9/11 presented with adjustment problems or subsyndromal disorders. They thus emphasized the importance of assessing a much broader set of mental health phenomena related to terrorism, beyond DSM IV diagnoses per se. In particular, while the DSM world view is most centrally focused on the inner psyche, the events of 9/11 had much broader

social, cultural, political and economic consequences which were important issues necessitating therapeutic attention beyond traditional psychological issues (Marshall and Suh, 2003).

It was particularly interesting to find that males and females did not significantly differ in either their negative views of the world or on the relationship between negative views and distress and deleterious drinking two years after the terrorist attacks. This is in contrast to the findings that women were more clearly affected by the terrorist attacks in the relatively immediate period following 9/11 (Richman et al., 2004). It is possible that the initial stronger female reactions to the terrorist events reflect gender-differentiated styles of emotional feeling states (Hochschild, 1975) in which women more quickly become in touch with powerful threats to their own security and that of their significant others while men are more likely to deny or intellectualize their feelings of fear. Perhaps, the continuing media coverage of Osama Bin Laden and al Qaeda threats of future attacks, and other evidence suggesting a continued terrorist threat, functioned to gradually break-down men's initial abilities to deny their fearful states of mind. Future empirical research could usefully address our speculations regarding gender differences in reactions over time to 9/11 and other acts of terrorism in the United States, as well as in the context of other societies coping with their own terrorism-related experiences.

Study Limitations

While the strengths of this study include being one of the first to address the longer-term mental health consequences of the post-9/11 world as well as being able to take into account pre-9/11 assessments of mental health, we should note a number of limitations in the interpretation of the findings. First, we used mail surveys, whose limitations include (1) biases from reading or language difficulties of some of the intended respondents, (2) the potential for greater initial nonresponse by individuals uncomfortable with sensitive questions and (3) inadequate attention to individual's adaptation and functioning resources. Secondly, these data are only representative of one sample originally drawn from an urban Midwestern United States university workplace. Moreover, by wave 5, there was differential attrition involving minority groups and student workers. While wave 5 completers did not differ significantly from the original sample in terms of the alcohol-related outcomes significantly linked with 9/11-related negative beliefs about the world or anxiety or hostility, they were significantly less depressed than the original sample. Thus, our findings may not generalize to the broader population (especially minority groups and student workers), and may underestimate depressive reactions and perhaps other types of related distress that were only measured at wave 5 (PTSD and somatization).

In addition, negative beliefs regarding the effects of terrorism were only measured at wave 5, at the same time point as the mental health outcomes. Thus, we can not definitively determine the causal direction of the relationships, even though we were able, in most cases, to partial out the effect of prior mental health status. However, at the same time, our findings add to those of other studies that demonstrated stress reactions to 9/11 occurring across the nation, increased vulnerability following earlier disasters (Weinstein, Lyon, Rothman & Cuite, 2000), and the effect of media depictions of the events of 9/11/01 (Amsel & Marshall,

2003). Moreover, reactions to threats of possible future terrorist acts in the period since 9/11/01 would likely affect individuals throughout the country beyond the specific targets on 9/11/01. For example, when the London public transportation system was attacked in 2005, “major U.S. cities” were asked, by Homeland Security, to adopt heightened vigilance measures (Associated Press, “Major U.S. Cities Raise Vigilance”, 2005).

Future Research

Given the linkages between terrorism-related negative beliefs and symptomatic distress and problematic drinking behaviors, the health and mental health professions are clearly presented with post 9/11 challenges regarding strategies for intervention and prevention in this area. Research has demonstrated that psychiatric patients not directly impacted by the 9/11 terrorist attacks were at increased risk for experiencing distressing symptoms following national terrorist attacks (Franklin, Young, & Zimmerman, 2002). Moreover, important issues for future research involve the extent to which untreated terrorism-related distress and increased alcohol consumption lead to more serious manifestations of psychopathology such as DSM-IV diagnoses of depressive, anxiety, PTSD and alcohol disorders. In addition, future research should address other problematic reactions to terrorism such as sleep disturbances, sexual dysfunction, altered eating habits, and relationship changes involving separations and divorces. Studies might also address the possibility that increased anger might have been accompanied by increased energy that was channeled in positive directions. Moreover, the role of protective moderating factors such as strong social support systems, and the role of vulnerability moderating factors such as other life stressors could usefully be addressed.

Finally, our data on the most prevalent manifestations of negative perceptions of the world and self since 9/11 may help inform the development of evidence-based interventions. Most importantly, these data showed that perceived real external threats to one’s sense of security in contrast to intrapersonal or interpersonal issues were the feelings most profoundly felt in the post 9/11 world. In terms of the current state of evidence-based interventions, Foa, Cahill, Boscarino, Hobfoll, Lahad, McNally and Solomon (2005) argue that, in terms of the general population, mental health advisors to the media should be trained in disaster communication and resiliency messages. In particular, balanced messages which legitimize fear while encouraging functioning are the most useful. In terms of treatment for those with acute stress reactions, one popular intervention, psychological debriefing, involves sessions where leaders ask participants to describe their thoughts, feelings, and behavioral reactions during an event and ventilate their emotions as they relive and process the trauma. However, Foa and colleagues (2005) argue that randomized controlled trials of psychological debriefing are limited, and existing results do not support the usefulness of this intervention in the prevention of chronic stress reactions. In terms of the treatment of chronic stress reactions such as PTSD, they argue that there is strong evidence for the efficacy of several types of Cognitive Behavioral Therapy (CBT). However, many therapists are not trained in these therapies, and their availability is typically limited to large cities and cities with relevant training programs. Thus, major challenges for dealing with the mental health and alcohol consumption-related consequences of future terrorist acts involve both the adequate

training of mental health professionals in terms of different levels of interventions, and research addressing the efficacy of these interventions.

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TABLE 1

Sociodemographic, Stressor and Mental Health Characteristics of Wave 5 Participants

	Wave 5 Respondents (n= 1453)			
Variable	(%)	No.	Mean No. (SD)	
Sociodemographic characteristics				
Age	....	(....)	42	(11.6)
Gender				
Women	55.5	(806)	....	(....)
Men	44.5	(647)	....	(....)
Race/ethnicity				
African American	21.4	(308)	....	(....)
Asian/Pacific Islander	13.0	(187)	....	(....)
Hispanic	6.4	(92)	....	(....)
White/other	59.2	(852)	....	(....)
Education				
Less than high school graduate; high school graduate or general equivalency diploma; technical or trade school	12.2	(176)	....	(....)
Some college or college graduate	19.0	(274)	....	(....)
Some graduate school or completed graduate school	68.8	(993)	....	(....)
Stressor Characteristics				
Negative beliefs	....	(....)	22.6	(6.8)
Mental Health Characteristics				
Depression	....	(....)	3.7	(4.1)
Anxiety	....	(....)	6.6	(5.7)
Hostility	....	(....)	1.7	(2.5)
Somatization	....	(....)	4.1	(5.3)
PTSD	....	(....)	21.2	(6.6)
Alcohol Related Outcomes				
Frequency of consumption	....	(....)	8.3	(8.6)
Quantity of consumption	....	(....)	1.7	(1.1)
Escape motives for drinking	....	(....)	7.8	(3.4)
Binge drinking	....	(....)	0.5	(1.1)
Drinking to intoxication	....	(....)	0.6	(1.0)
Problem related drinking	....	(....)	1.3	(2.6)

TABLE 2

Prevalence of 9/11 Negative Beliefs Two Years Later in 2003

Items	Not/ A Little True		Somewhat True		Very/ Extremely True	
	%	n	%	n	%	n
Feel more pessimistic about world peace	41.9	600	28.4	406	29.8	426
Feel less faith in government's ability to protect	45.5	659	27.0	390	27.5	398
Feel less safe than before 9/11	50.5	729	29.0	420	20.6	297
Remain fearful of potential attacks in future	52.3	755	24.7	356	23.0	331
Feel less safe to control forces influencing life	60.6	875	24.8	358	14.6	212
Feel more pessimistic about own future well-being	74.6	1065	18.2	259	7.1	102
Disappointed by other people at time of crisis	86.8	1254	8.0	115	5.2	75
Like someone less because of actions after 9/11	89.8	1299	4.9	71	5.3	77
Disappointed by other person's lack of help	90.4	1310	5.9	86	3.6	53
Believe you should have given more support to others	92.5	1338	4.6	66	2.9	42
Feel less confident in abilities to cope with major crises	93.4	1352	4.2	61	2.3	34
Disappointed in yourself at time of crisis	95.1	1374	3.5	50	1.4	21

TABLE 3
Hierarchical Linear Regression Models Predicting Mental Health Outcomes from Negative Beliefs

	Depression (n=1252)		Anxiety (n=1251)		Hostility (n=1288)		Somatization (n=1301)		PTSD (n=1311)	
	B (S.E.)	R ²	B (S.E.)	R ²	B (S.E.)	R ²	B (S.E.)	R ²	B (S.E.)	R ²
Step 1.										
Age	-.003 (.010)		-.036 (.013) **		-.021 (.006) ***		.017 (.012)		.018 (.014)	
Gender (1=Women)	.229 (.215)		.276 (.288)		.067 (.132)		.926 (.282) **		.053 (.307)	
Race (1= Whites)	.106 (.239)		1.423 (.323) ***		.318 (.147) *		-.203 (.316)		-.507 (.344)	
Education	-.153 (.049) **		-.068 (.066)		-.003 (.030)		-.296 (.063) ***		-.222 (.069) **	
Baseline health	.434 (.027) ***		.397 (.025) ***		.284 (.024) ***					
Step 2.										
Negative Beliefs	.127 (.016) ***	.219	.167 (.022) ***	.247	.079 (.010) ***	.166	.142 (.021) ***	.079	.431 (.023) ***	.249

Note. Unstandardized regression coefficients and standard errors are displayed. Coefficients presented are from the full model.

* p < .05;

** p < .01;

*** p < .001

TABLE 4

Hierarchical Linear Regression Models Predicting Drinking Related Outcomes from Negative Beliefs

	Frequency of Binge Drinking (n=899)		Escapist Motives for Drinking (n=848)	
	B (S.E.)	R ²	B (S.E.)	R ²
Step 1.				
Age	-.007 (.003) *		-.034 (.008) ***	
Gender (1=Women)	-.235 (.064) ***		.122 (.190)	
Race (1= Whites)	-.142 (.077)		.428 (.230)	
Education	-.024 (.016)		-.022 (.048)	
Baseline drinking	.335 (.029) ***		.612 (.032) ***	
Step 2.				
Negative Beliefs	.010 (.005) *		.045 (.015) **	
Model R ²		.194		.325

Note . Unstandardized regression coefficients and standard errors are displayed. Coefficients presented are from the full model.

*
p < .05;

**
p < .01;

p < .001