
Trying to Understand Behavioral Responses to Terrorism: Personal Civil Liberties, Environmental Hazards, and U.S. Resident Reactions to the September 11, 2001 Attacks

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Abstract

Terrorism is a dreaded environmental hazard. Shortly after the terrorist attacks on the United States on September 11, 2001, a nationwide random sample of 1,200 adults 18 years or older was gathered by the Pew Research Center regarding public perceptions about the attacks and their aftermath. A year later, they repeated the national sample and added special samples of New York City and Washington, D.C. Using these data and theories developed to understand public reactions to environmental hazards, we examined the extent to which U.S. residents were willing to allow government to monitor credit card purchases, telephone calls, and e-mails, and were willing to carry a national identification card, which would be produced upon request by police. In 2001, 36% of respondents supported two or three of these actions, and in 2002, the proportion was 31%. But in New York City, 49% favored two or three. The most interesting findings were the change in the correlates of public support. In 2001, a combination of demographic (education, age), residence of respondent, and feelings (praying more, depressed) were the strongest correlates of the willingness to sacrifice personal civil liberties. A year later, the strongest correlates, especially in New York City, were behaviors and feelings (suspicious, angry, scared, avoided certain cities and events). In other words, as expected from theory, some members of the

public have begun to focus on what they can do to reduce their risk, and that behavioral pattern includes a willingness to surrender some civil liberties.

Keywords: *civil liberties, environmental hazards, heuristics, mental models, terrorism*

Introduction

The September 11, 2001 attacks on the United States have raised fears about the erosion of civil liberties. Dinh (2002), Assistant Attorney General in the Office of Legal Policy in the U.S. Department of Justice, argues that freedom depends on security and that the Bush Administration's policies place priority on protecting the U.S. democracy. Heymann (2002), former Deputy Attorney General in the U.S. Department of Justice, is less sanguine about the administration's policies, asserting that the U.S. government must target the right people, and that Americans' historical value of courage and decency should be weighed against fear and anger in deciding about how much pressure to exert on civil liberties. Luban (2002) argues that the U.S. government has developed a hybrid of both "legal" and "war" models of jurisprudence that allows it to suspend the rights of people who it considers part warrior and part criminal. Amnesty International (2002), the American Civil Liberties Union

(2002), and a host of other writers and organizations are also focusing on the curtailment of civil liberties arising from 9/11 (see also Cole 2001; Free Expression Network 2002).

Fears about restricting civil liberties are not new in the United States. During the last sixty years, the internment of Japanese Americans during World War II, the Joseph McCarthy hearings, publishing the names of pedophiles, and the dispute about HIV/AIDS registries, all bear witness to the willingness of both elected officials and members of the public to take precautionary actions against plausible threats (American Civil Liberties Union 2001; Gostin, Ward and Baker 1997; Howard and Stern 2002). In short, in the United States, long before 9/11, people identified as endangering the society have lost the presumption of innocence, have not had a hearing before their peers and have had other rights suspended.

If the U.S. government starts checking the phone messages and other personal records of many Americans, there surely will be an outcry that the government is becoming like George Orwell's "Big Brother" image in *1984* (Orwell 1977). But how many will join the outcry versus how many are willing to give the government access to their personal records and agree to carry a national ID card? Furthermore, who are these people who will support and oppose government access to personal records? It would be prudent for the national government to know the answers to these questions. Toward that end, this research answered two multi-part questions:

- What proportion of U.S. residents were willing to carry an ID card and allow government access to their records immediately after 9/11? How much did this proportion change between 2001 and 2002?
- What were the strongest emotional, behavioral, and demographic correlates of the public's willingness to incur more invasion of privacy? How did the strength of these correlates change in the year after the 9/11 event? How did they vary between New York City, Washington, D.C. and the United States as whole?

The first research question can be answered by reviewing polling data. Expected answers to the second question are based on theories developed by environmental psychologists, sociologists, other social scientists, and public health researchers who have been trying to understand individual reactions to chemical, nuclear, earthquake, tornado, and other hazards. Theory predicts that fewer will want to suspend civil liberties in the fall of 2002 than in September 2001. Yet, we also expected to find that the threat of terrorism has caused some people, especially those who personally had some relationship to the event, to continue to have emotional symptoms and to have changed behaviors to try to gain some control over terrorist threats. These reactions include a willingness to allow the government access to personal records. The most agreeable to allowing a diminution of personal pri-

vacy should be disproportionately found in New York City and Washington, D.C.

Previous Research

With regard to the first research question, the Gallup organization and The Pew Research Center For the People and Press have conducted polls and monitored polling data about civil liberties following 9/11. Nearly all the questions focus on rights of suspected enemies of the United States. But a few questions address policies that would impact the vast majority of Americans. In January, June, and September 2002, Gallup (2002) asked a random sample of Americans if the "government should take all steps necessary to prevent additional acts of terrorism in the U.S., even if it means your basic civil liberties would be violated." The proportion that supported this proposition declined from 47% in late January to 40% in June and to 33% in September 2002.

Pew provided data from surveys conducted by the *Los Angeles Times* in April 1995 (immediately after the Oklahoma City bombing), and by Pew in 1996 and 1997, after the terrorist attacks in September 2001, and later in January 2002 and June 2002. Respondents were asked if they thought it would be necessary for the average person to "give up some civil liberties to curb terrorism." Like the Gallup questions, the time series shows stronger support for sacrificing civil liberties immediately after an event. But within six months, the proportion begins to shrink from more than 60% to about half that proportion. While the trend is unmistakable, in reality we have doubts about the significance of the results because there is no specific civil liberty threatened in the questions.

More detailed questions provide useful insights. In September 2001 and again in October 2001, Gallup asked 534 adults if the government should make it easier to "read mail, e-mail, or tap phones without the person's knowledge" (Gallup 2002). One third favored this idea in September 2001 and 37% a month later. In September 2001 and a month later, an average of 83% favored security procedures that would require passengers to check in two to three hours before their scheduled departure. And in September 2001, over 80% favored requiring people who were going into an office to show ID and go through metal detectors. The *Washington Post* polled 518 adult Americans in September and November 2002 and found that an average of 61% supported a law requiring that all adults carry a national identification card (Gallup 2002). Yet only 29% agreed with the idea that police could stop people on the street at random to search their possessions. Overall, questions about specific civil liberties show that the U.S. public is not ready to rubber-stamp every proposed action that could affect their privacy. They

appear to be willing to tolerate inconveniences but far fewer want the government sorting through their records and possessions.

With regard to the correlates of public support of restrictions of civil liberties, that is, the second research question, key literature dates from the late 1960s and early 1970s when the United States government was about to regulate environmental pollutants and was searching for input about "how safe is safe enough." Researchers observed that non-technical concerns impact the public's willingness to tolerate environmental hazards. For example, Chauncey Starr (1969) indicated that the public was 1,000 times more willing to accept voluntary risks such as skiing than involuntary ones such as food additives. Fischhoff et al. (1978) observed that unacceptable risks were likely to be dreaded and uncertain. Their work became the core of the so-called "psychometric paradigm" that is central to the research presented in this paper and much of the environmental perception literature. The psychometric paradigm suggests that strong emotional reactions such as, anger, fear, and worry occur when environmental hazards can have catastrophic impacts, are not easily controlled, and are not well understood. Kasperson et al. (1988) added that mass media coverage amplifies the risk of many hazards, causing them to be even more dreaded.

The environmental perception literature provides strong clues about what to expect in the case of terrorism. Before the 9/11 attacks, France and other European nations had experienced terrorism, and the American public was quite concerned. For example, Karpowicz-Lazreg and Mullet (1993; see also Slovic, Fischhoff and Lichtenstein 1980) asked French students to rate the risk of 90 hazards. Terrorism ranked third. Only heroin and nuclear weapons ranked higher. Furthermore, nuclear weapons, the second ranking hazard in the French survey, is greatly feared as a terrorist weapon, and nerve gas, which ranked fifteenth in the French survey, is another feared terrorist weapon. The American results were quite similar to France's. The notable exception was heroin, which was much less feared in the United States. In short, about a decade before the unforgettable visual stimuli of planes flying into the World Trade Center, people running in fear, almost continuous coverage by the media, policy and budget changes by the national government, military attacks on terrorist areas, and daily ratings of the likelihood of terrorism broadcast on the mass media, terrorism was a dreaded hazard in the United States. Arguably, the attacks of 9/11 may be even more memorable than the assassination of President Kennedy in 1963, the 1986 Chernobyl nuclear reactor meltdown, and other highly visible events.

Studies of actual victims of the Oklahoma City bombing and the September 11, 2001 terrorist attacks showed a large

proportion of victims had strong feelings and suffered post-traumatic disorders (Koren, Arnon and Klein 1999; North et al. 1999; Schuster et al. 2001). It is hard to conceive that we would not find a large proportion of Americans exhibiting strong feelings about the terrorist attacks.

In order to cope with dread, uncertain hazards, and resulting feelings, Slovic, Fischhoff and Lichtenstein (1986) and MacCregor and Fleming (1991, 1996) contend that people construct mental models, or heuristics, that merge together their attitudes, beliefs, experience, knowledge, impressions, and images about the hazard and related hazards. For example, Greenberg and Schneider (1996) found that over 90% of people who observed crime and physical decay in their neighborhoods (often associated with industrial facilities, brownfields, electricity generating stations, junkyards, and other industrial activities) rated their neighborhoods as poor quality compared to less than 5% of Americans as a whole. People in these neighborhoods, in essence, built a mental model joining crime and blight. With regard to behaviors, they typically wanted to leave their distressed neighborhoods, but normally lacked the resources to move. Some coped with their distress about blight by buying indoor air purifiers and compulsively cleaning their homes. They responded to their fear of crime by only going outside at certain times, adding alarms, bars, special locks, and in many other ways doing whatever they could to warn themselves of imminent threats and reduce their risk.

Support for a relationship between strong feelings and behaviors also comes from the public health literature. Sloman (2002) studied physical and psychological coping strategies of 56 Australians with cancer. Those who engaged in psychological and physical efforts to cope rather than be passive were not able to eliminate their anxiety, but their quality of life improved and they were less likely to be depressed. Wengstrom, Haggmark and Forsberg (2001) analyzed coping strategies of women with breast cancer and found that the women who were most successful in coping engaged in a wide variety of responses they initiated, rather than relying on physicians and medicines. In short, in the case of the terrorist attacks, those who felt anger, fear, worry, and patriotism should support government access to personal records, and they should disproportionately have taken measures, such as storing drugs and food, not going to places with concentrations of people, not flying on airplanes, and being suspicious of strangers.

Mental models are influenced by trust of authority. People who do not trust authority to protect them are likely to be suspicious of government attempts to inspect personal records. In this regard, racial and ethnic minorities, youth, poor people, and women, that is, those who are less likely to perceive that they are part of the power structure, have less

reason to trust authority than older white males. Evidence for this expectation was presented by Flynn, Slovic and Mertz (1994). They surveyed 1,275 "white" and 214 "nonwhite" Americans about 24 potential public health risks including AIDS, bacteria in food, tobacco smoking, storms and floods, and chemical pollution. White men had the lowest risk perception in every comparison. A follow-up by Finucane et al. (2000) made similar findings. In a study of perception of air pollution in Philadelphia, Johnson (2002) found that non-white women were more concerned than were white men (See also Lave and Lave 1991; Slovic 1993; Trumbo and McComas 2003).

With regard to the impact of trust on government access to personal records, Carlson (2002) observed that whites were far more likely to believe that civil rights are respected by the criminal justice system than were nonwhites. For example, only 48% of self-identified Blacks, 43% of Muslims, and 42% of Arabs perceived that the criminal rights of Hispanics were respected. This compares to 53% of Hispanics, 61% of Asians, and 81% of Whites. This study suggests that Arab, Muslim, and Black respondents would be less supportive of giving government access to records than would Hispanics, Asians, and Whites. Overall, the literature implies that young African, Asian, Indian, and Latino American women who are poor and less educated would be more likely to oppose civil liberty reductions than would older, affluent, and more educated white men.

Trust also varies with political context. In the case of the 9/11 attacks, those who supported the administration of President George W. Bush prior to the attacks should be more likely to trust that the national government will not abuse its terrorist-related investigative powers than those who do not look favorably on the Bush administration. Also, trust varies geographically in the United States. Historically the South has favored militarism, and the West has been less trusting of centralized government (Lind 1999; see also Pew 1998). Consequently, we would expect western respondents to be less supportive of government intrusion and southerners more tolerant.

Emotions and behavioral responses can change. For example, based on a study of two chemical facilities in Texas, Rogers (1997) showed that continued attention to hazards in the media and public events led to gradual reshaping of public behaviors toward the facilities (see also Grunig 1983; Loewenstein and Mather 1990; Lawless 1977). Indeed, Chaiken (1980) and Eagly and Chaiken (1993) argue that heuristic rules-of-thumb for coping with environmental hazards are not stable (see also Trumbo and McComas 2003). As the image of the incident fades in time, emotions cool down and other priorities emerge that require modifying heuristics and behaviors.

Kahlor et al. (2003) found that some people require a lot of information to make a risk decision, and the wider the gap between their needs and their current knowledge, the more likely they are to look for and analyze a lot of information and form stable risk judgments. In other words, more deliberative analysis leads to more stable reactions and behaviors. Yet Slovic (2002) believes that terrorism is a "new species of trouble," that is, dreaded hazards with no ending in site that will "batter us for much of this new century." (Slovic 2002, 426). He feels that mental models have already been created by the public. Analytical reasoning by individuals regarding their behavioral responses will occur, he asserts, but will interact with the alarm that triggered so many emotions, feelings, metaphors, stories, and images.

Overall, the literature suggested that the answers to the two research questions would be as follows: A larger proportion of the population of the United States would be willing to sacrifice some civil liberties immediately after the attacks in September 2001 than a year later. But given the memorability of the event, it is hard to believe that there would be much attenuation of strong emotions. We expected much higher concerns and behavioral responses in New York City and Washington, D.C. than the United States as whole. We also expected strong associations among willingness to surrender civil liberties, anger, worry, concern, and other emotions, and behavioral responses such as not flying on airplanes, not visiting cities, and other perceived risk reduction options.

Data and Methods

Survey Methodology

This paper is based on two Pew Research Center surveys conducted by telephone under the direction of Princeton Survey Research Associates (2001, 2002). The first was a nationwide random-digit dialing telephone sample of 1,200 adults, 18 years-of-age or older, during the period of September 13-17, 2001. The second survey included a national sample of 1,001 and 801 residents of New York and Washington, D.C. collected in late August 2002. This paper analyzed all responses from the 2001 survey and 2002 survey that contained responses to civil liberty questions.

Like all surveys, these were subject to sampling error, which is the expected probable difference between interviewing everyone in a population versus a scientific sample drawn from that population. For a sample of 800 national adults one can say with 95% confidence that the error due to sampling and other random effects is ± 3.5 percentage points. For example, if 50% of the sample favored the measure of requiring all citizens to carry a national identity card, one can be 95% sure that the actual percent of the total adult population

of the United States who favor this measure is between 46.5% and 53.5% ($50\% \pm 3.5$). Sampling error increases as sample size decreases.

Non-response in telephone interview surveys produces some known biases in survey-derived estimates because participation tends to vary for different subgroups of the population, and these subgroups are likely to vary also on questions of substantive interest. In order to compensate for biases, the sample data were weighted. The demographic weighting parameters were derived from a special analysis of the most recently available Census Bureau tabulations. This analysis produces population parameters for the demographic characteristics of households with adults 18 or older, which are then compared with the sample characteristics to construct sample weights. Analyses only include households in the continental United States that contain a telephone. The weights are derived using an iterative technique that simultaneously balances the distributions of all weighting parameters.

Question Development

Questions in the two surveys were developed to gauge reaction to media coverage, political leadership, emotional and psychological impacts of the attacks, and ways to combat terrorism in the future. The survey included a number of questions related to civil liberties, but civil liberties were not the focus of the surveys, which means that some questions that would have been helpful were not posed. Also some questions from the beginning of the Persian Gulf War in January 1991 were used as a guideline for structuring comparable questions and as a baseline for comparison (Pew 2001).

Thirty-seven questions were taken from the more than 60 in the 2001 survey and 36 from the 2002 version to answer the two research questions we posed for the study. Both surveys asked three questions about personal civil liberties. One asked if respondents favored requiring all citizens to carry an ID card at all times to show to police on request. The second and third questions asked if the respondent favored allowing the U.S. government to monitor credit card purchases, telephone calls, and e-mails. The requested responses were "yes" or "no." However, the questions were slightly changed in different panels. In 2001, all 868 were asked if "all" citizens should be required to carry an ID card; in 2002, some respondents were asked if "all" should carry an ID card, but others were asked if "you" should carry one. While these questions were similar, in fact, they are not exactly the same questions, and we will show later that the responses were slightly different. The other two personal civil liberty questions also changed between "all" and "you" versions of the survey. Hence, the 2002 data could not be pooled. Each panel was treated as a separate data set.

Both surveys asked a few questions to determine the extent to which respondents support actions that are aimed at protecting U.S. citizens while compromising the civil liberties of perceived terrorists. The 2001 survey asked if the CIA should contract with criminals to pursue suspected terrorists overseas and to conduct assassinations overseas, as well as if the U.S. government should take legal immigrants from unfriendly countries to internment camps. The 2002 survey asked if pilots should be allowed to carry handguns and if airport personnel should do extra checks on passengers who appear to be of Middle-Eastern descent. These five questions are not the focus of this study because the study focuses on civil liberty intrusions that every U.S. resident would face. However, they are used here to compare to the responses to the three U.S. civil liberties core questions about ID cards, credit cards, phones, and e-mail.

With regard to expected correlates, 16 questions probed feelings, such as anger, sadness, fear, worry, patriotism; behaviors, such as canceling airplane trips and trips to a major city; and trust of the Bush administration. All requested a "yes" or "no" response. Most of the questions in the two surveys were the same, but some were not. The fact that some questions were not in both surveys posed a problem that could not be fully remedied, and it clearly is a caveat to be noted by the reader.

Fifteen questions were used to examine the demographic correlates of respondents' views about personal civil liberties. These included respondent age (18 or above), sex, race/ethnicity, educational achievement, income, number of children living in the household, and region of residence (Northeast, Midwest, South, and West, see Table 1).

Results

Sample Characteristics

Table 1 summarizes the demographic characteristics of the respondents to the two surveys. The sample resembles the United States as a whole, but not perfectly. Specifically, the Caucasian/White population is over represented in the sample, and the Hispanic/Latino, Black/African American, and Asian American populations are underrepresented. For example, Black/African Americans comprise 12.3% of the national population but only 8.4% of the first sample and 7.5% of the second. White/Caucasian Americans represent 75.1% of the national population compared to 80.4% of the first sample and 83.7% of the second national sample. The second notable deviation from the national population profile is that males are under represented and females over represented. Differences for educational achievement, income, and region were not as notable as they were for race/ethnicity and gender. Nevertheless, these differences could bias the results.

Table 1. Demographic characteristics of respondents before weighting.

Variable	Proportion 9/01 (n = 868)	Proportion 9/02 (n = 1001)
Male	46.7	46.6
Female	53.3	53.4
Age:		
18-25	10.1	12.6
26-44	40.5	34.4
45-64	33.8	34.1
65+	15.6	18.9
Education:		
Did not complete high school	7.6	7.6
High school graduate or GED	30.8	29.4
Business, technical, or vocation school after high school	3.8	3.8
Some college	23.6	26.1
College or University Degree	22.1	21.4
Post Graduate After College	12.1	11.7
Racial/ethnic identity:		
Hispanic*	7.3	6.9
White	80.4	83.7
Black or African American	8.4	7.5
Asian or Pacific Islander	3.3	2.1
Other	4.9	4.8
Don't know or refused	2.0	1.9
Household income:		
Less than \$20,000	12.9	14.1
\$20,000 to less than \$40,000	22.7	23.7
\$40,000 to less than \$100,000	37.0	35.2
\$100,000+	10.0	11.7
Don't know or refused	17.4	15.4
Region of residence of respondent:		
Northeast**	13.5	18.2
Midwest**	26.3	24.1
South**	37.7	34.7
West**	22.6	23.1

*Hispanic and non-Hispanic was a separate question from Race.

Consequently, the column does not add to 100%.

**Based on United States Bureau of the Census regions.

In order to determine the impact of the differences between the sample's and the nation's demographic charac-

teristics on the results, the sample data were weighted as noted above. This made the sample conform to the national profiles for race/ethnicity and gender.

Civil Liberties

Table 2 answers the research question about civil liberties. Each cell in the table notes whether the respondent was asked the "all" or the "you" version of the question. Sixty-seven percent of respondents to the 2001 survey favored requiring that all U.S. residents carry an ID card. The 2002 responses range from 57% of Washington, D.C. respondents who were asked the "you" version of the question to 67% of New York City respondents who were asked the same question. Notably, the 8% change in proportions who answered the "all" question between 2001 and 2002 (67% to 59%) is statistically significant ($p < .05$), but the difference between the "all" and "you" versions of the year 2002 questions are not (62% versus 59%). In other words, there was a bigger difference between the time intervals than between the slightly different versions of the questions.

Twenty-six percent in the 2001 survey favored allowing the U.S. government to monitor personal telephone calls and e-mails ("you" version). A year later, it fell to 22%. But the "all" version of the question was 33%. The difference for the 2001 and 2002 questions (26% versus 22%) is not significantly different, but the 33% versus 22% difference between the "you" and "all" questions in 2002 is significant. Notably, 37% of New York City respondents to the "all" question said they were willing to allow the monitoring of all phone and e-mail messages.

The biggest differences were found in response to credit card purchase questions. In 2001, 39% ("you" question) said they would support monitoring their purchases, and the equivalent proportion to the same question in 2002 was 32%. But the "all" version of the question produced much higher and statistically significant proportions in the national sample, as well as the New York City and Washington, D.C. samples.

Table 2. Civil liberty perceptions associated with September 11, 2001 terrorist attacks.

Variable	National September 2001 (n = 868)	September 2002 (n = 501)	September 2002 (n = 500)	September 2002, NYC (n = 401)	September 2002, DC (n = 400)
Favor requiring all citizens/you to carry ID card at all times to show to a police officer on request	% yes = 67 [all]	% yes = 59 [all]	% yes = 62 [you]	% yes = 67 [you]	% yes = 57 [you]
Allow U.S. government to monitor all/ your personal telephone calls and e-mails	% yes = 26 [your]	% yes = 22 [your]	% yes = 33 [all]	% yes = 37 [all]	% yes = 33 [all]
Allow U.S. government to monitor all/your credit card purchases	% yes = 39 [your]	% yes = 32 [your]	% yes = 43 [all]	% yes = 53 [all]	% yes = 52 [all]

Source: Pew 2001, 2002.

Overall, despite the cumbersome shifting back and forth between the “you” and “all” versions of the questions, we were able to identify two patterns. One was an expected decrease in support for government review of personal records and a national ID card from September 2001 to September 2002. Second, as expected, New York City respondents, who suffered the most as measured by deaths and property damage, showed the strongest support for government access to personal records.

We assumed that there would be an association among responses to the three personal civil liberty questions. This proved to be the case. The phi correlation measure, which is the equivalent of Pearson r for dichotomous data, was used as a measure of correlation. The average phi value for the three personal civil liberty questions in 2002 was 0.31, and all three were statistically significant at $p < .01$. The same finding was made with the civil liberty questions asked as part of the 2001 survey. The three personal civil liberty questions had an average phi value of 0.33, and all were statistically significant at $p < 0.01$. Given the association in both surveys among the three personal civil liberty questions, we computed a simple personal civil liberties measure by adding the number of actions. In September 2001, 25% favored none of the three personal civil liberty actions, 35% favored one action in 2001, 22% supported two actions, and 18% supported all three. In 2002, the comparable questions showed 31%, 38%, 18%, and 13% favored none, one, two, and three actions, respectively. In other words, in 2001 36% of respondents favored two or three of the actions that would effect civil liberties, and in 2002, the proportion slipped to 31%. In New York City,

where the loss of life and property has been a major issue, in 2002 49% favored two or three.

Differences in Time and Among Places

Before reviewing the associations between civil liberties, emotions, other behaviors, and other characteristics, we compare the results of the 9/11 survey with a Pew (2001) survey taken at the time of the Gulf War. As expected, the 9/11 events showed higher levels of public reaction. For example, in 1991, half of the respondents said they had felt depressed. The comparable number after 9/11 was 71%. In 1991, 71% said that they felt sad when watching the events displayed on television, and 67% said it was frightening to watch. The comparable numbers for 9/11 were 92% and 77%, respectively ($p < .01$).

Table 3 compares personal experiences, emotions, and behaviors in the national 2002 sample with samples in New York City and Washington, D.C. Not all of these results were what we had anticipated. With regard to experiences, New York City residents clearly were closer to the event than their counterparts elsewhere in the nation or Washington, D.C. Remarkably, almost half of New York City respondents said they knew someone hurt or killed in the attacks.

With regard to emotions, as expected those closer were more likely to be sad, scared, depressed angry, and worried about another attack. But this did not hold true for Washington, D.C. The proportion reporting being sad, depressed, angry, and very worried about another attack was not higher in Washington, D.C. than the United States as a whole. Behavioral differences, however, were as expected, that is,

Table 3. Comparison of national, New York City and Washington, DC indicators, and September 2002 data.

Correlate type	National (n = 501)	Washington, D.C. (n = 400)	September 2002, NYC (n = 401)
Experience: 9/11 was biggest life event of 2001	38	44	51
Experience: Knew someone hurt or killed in attacks	11	21	46
Emotion: Often feel sad	24	23	37
Emotion: Often feel scared	12	15	18
Emotion: Often feel depressed	10	8	14
Emotion: Often feel angry	31	27	41
Emotion: Very worried about another attack	16	20	28
Emotion: Very worried you or someone in your family will be victim of terrorist attack	12	16	25
Behavior: Avoided public events or other crowded places	15	30	31
Behavior: Traveled by air less	17	28	30
Behavior: Handled mail differently	24	32	31
Behavior: Spent more time close to home and with family	42	47	57
Behavior: Made arrangements for your children with family or friends in case of a possible emergency	35	37	51

stronger behavioral responses in New York City and Washington, D.C. than the rest of the nation.

Correlates of Civil Liberty Responses

Relationships among the civil liberties and emotions, other behaviors, and demographic characteristics initially were studied with cross-tabulations and tested with chi-square statistics. We observed that the four civil liberties action support groups (0,1,2, or 3 actions) collapsed into two groups (0-1 or 2-3). Consequently, every respondent was placed into groups: 1) favor 0 or 1 actions to curtail personal civil liberties, or 2) favor 2 or 3.

The results were quite consistent, and are presented in Tables 4-6 for the national data in 2001, and for the New York City and national data in 2002. Briefly, with regard to the year 2001, nine of the 30 (30%) of the correlations were statistically significant ($p < 0.05$). In the year 2002 national sample, 10 of the 32 (31%) were significant. The New York City survey found 13 of 32 (41%) were statistically significant. In both years, between one and two ($0.05 \times 31 = 1.55$) would have been expected by chance.

We used binary logistic regression to obtain a multivariate view of the associations among the civil liberties variable and each of the statistically significant correlates. Three types of information are provided in Tables 4-6. The first are the proportions that answered the question "yes" in each of the two groups, and the second column contains the B-values calculated from the logistic regression. The third column has the odds ratios (OR) from the logistic regression model. These are used in the text. The variables in the tables are listed in their order of selection into the model, so the strongest correlates are first.

The September 2001 results show that three of the five

strongest correlates were demographic. Those who supported two or three actions were less likely to have a college education (OR = 0.717), they tended not to be 36-49 years old (OR = 0.698, they were younger), and they were Latino (OR = 1.656). They also were not residents of the West (OR = 0.758). Three of the four findings (not middle-age, not western resident, and not college educated) had been expected. But the Latino result had not been anticipated.

Four expected relationships were observed with behaviors and feelings. The strongest were with praying more (OR = 1.376), depression (OR = 1.354), not being able to stop watching television (OR = 1.307), and considering canceling a trip to a major city (OR = 1.096). In other words, the year 2001 survey results show a mixture of demographic, emotional, and behavioral correlates. The 2001 results show a high level of emotion immediately after the event. Many people were figuratively glued to the television, struggling with the magnitude and unprecedented nature of the event in the United States context, and they were using their previous experiences (measured by age, education, regional residence) to form heuristics and to guide behaviors. These results, in short, do not suggest the formation of a hardened set of positions about access to personal records.

The results of the 2002 national survey are much clearer and stronger (see Table 5). Some are striking. Three of the five strongest and half of the 10 are feelings: anger, scared, depressed, sad, and worried. Two of the odds ratios are quite strong: anger (OR = 1.626) and scared (OR = 1.486). Four of the 10 significant correlates were behaviors: difficulty sleeping, spent more time close to home, avoided traveling to certain cities and traveled less by air. Difficulty sleeping was the strongest of these behaviors (OR = 1.460). The final statistically significant correlate was trust of government action to

Table 4. Binary logistic regression of personal civil liberty responses and expected correlates, September 2001 national data.*

Respondent characteristic	Number of actions supported		B value	Odd ratios and 95% confidence limits
	0-1	2-3		
Some college or graduated college	66%	55%	-0.333***	0.717 (0.536, 0.959)
Praying more as a result of terrorist attacks	66	76	0.319***	1.376 (0.998, 1.898)
36-49 years old	50	42	-0.359**	0.698 (0.525, 0.928)
Depressed as a result of terrorist attacks	69	77	0.303**	1.354 (0.977, 1.875)
Latino respondent	6	10	0.504**	1.656 (0.971, 2.824)
Can't stop watching television as a result of terrorist attacks	59	67	0.268**	1.307 (0.974, 1.753)
Considering canceling trip to a major city	18	24	0.177**	1.194 (0.771, 1.848)
Considering canceling airplane trip	21	28	0.091**	1.096 (0.723, 1.692)
Resident of Western U.S.	25	19	-0.277**	0.758 (0.538, 1.067)
Constant	-0.706		0.493	

*Year 2001 model accurately classified 62% of cases. Nagelkerke R square was .061 (n = 868 cases).

**statistically significant at $p < 0.05$

***statistically significant at $p < 0.01$

Table 5. Binary logistic regression of personal civil liberty concerns, September 2002 national data.*

Respondent characteristic	Number of actions supported		B value (by order of Wald value)	Odds ratio (95% confidence limits)
	0-1	2-3		
Often feel angry	25%	40%	0.486***	1.626 (1.041, 2.538)
Often have difficulty sleeping	9	20	0.378***	1.460 (0.748, 2.850)
Often feel scared	8	19	0.396***	1.486 (0.734, 3.008)
Spent more time close to home and with family during last year	36	50	0.211***	1.235 (0.782, 1.953)
Often feel depressed	25	37	0.143***	1.153 (0.816, 1.631)
Avoided traveling to certain cities	12	21	0.141***	1.152 (0.604, 2.197)
Traveled by air less	12	21	0.307***	1.388 (0.904, 2.044)
Government doing an excellent job defending Americans from terrorist attacks	9	17	0.680***	1.973 (1.108, 3.515)
Often feel sad	19	29	0.056**	1.057 (0.634, 1.764)
Worried about terrorist attack	11	19	0.057**	1.059 (0.578, 1.940)
Constant			-1.326	0.266

* Full model accurately classified 70% of cases. Nagerlkerke R square was .084 (n = 501 cases).

** statistically significant at $p < 0.05$

***statistically significant at $p < 0.0$

protect the public against terrorism. All 10 of the results were expected from the literature.

Table 6 presents the New York City results. They are stronger than either of the national samples. The Nagerlkerke R square value was 0.149 compared to 0.061 for the 2001 results and 0.084 for the national 2002 results.

Looking at the components of the national and New York City statistical models, levels of anger, sadness, and fright were about the same in New York City and the nation in late 2002. Indeed, with respect to driving the statistical results, feelings were more important in the national results. For

example, the odds ratio for anger in the national sample was 1.626 and it was the strongest correlate, but the OR was 1.175 and it was only the ninth strongest feeling in the New York City analysis. The second strongest feeling in the national sample was feeling scared (OR = 1.486). It ranked thirteenth in the New York City sample (OR = 1.063). Depression ranked fifth in the national sample and was not a significant correlate in the New York City sample.

In contrast, the strongest feeling in the New York City results was suspicion (OR = 2.251), which is a feeling that is likely to be accompanied by a behavior. Suspicion was not a

Table 6. Binary logistic regression of personal civil liberty concerns, September 2002 New York City data.*

Respondent characteristic	Number of actions supported		B value	Odd ratios and 95% confidence limits
	0-1	2-3		
Often feel suspicious	46%	63%	0.460***	2.251 (1.017, 2.465)
Spent more time close to home and with family during last year	46	62	0.134***	1.144 (0.707, 1.849)
Worried about terrorist attack	16	29	0.446***	1.562 (0.862, 2.830)
Often feel patriotic	51	66	0.345***	1.412 (0.903, 2.206)
Avoided public events	21	34	0.366***	1.443 (0.810, 2.571)
Avoided traveling to certain cities	18	30	0.253***	1.307 (0.718, 2.310)
Male respondent	45	59	0.811***	2.251 (1.447, 3.500)
Traveled by air less	21	33	0.221***	1.247 (0.728, 2.135)
Often feel angry	32	44	0.161**	1.175 (0.729, 1.894)
Government doing an excellent job managing the war	4	10	0.666**	1.946 (0.813, 4.658)
Often feel sad	26	36	0.068**	1.071 (0.640, 1.791)
Handling mail differently	24	33	0.099**	1.104 (0.658, 1.853)
Often feel scared	11	18	0.061**	1.063 (0.517, 2.185)
Constant			-1.146	0.236

*Full model accurately classified 62% of cases. Nagerlkerke R square was .149 (n = 401 cases).

** statistically significant at $p < 0.05$

***statistically significant at $p < 0.01$

significant predictor in the national sample. With regard to behaviors, avoided public events and handling mail differently were predictors in the New York City model and not in the national one. The three behaviors that were significant predictors in both the national and New York City analyses were more prevalent in New York City: spent more time close to home and with family, avoided traveling to certain cities, and traveled less by air. Overall, many New Yorkers felt personally involved in the event and its aftermath. They were angry, worried, patriotic, sad, and suspicious, and built a mental model that included behavioral changes. Fueled by the New York media, it is hard to believe that they will quickly change their feelings and behavioral responses, including their willingness to allow access to personal records.

Discussion

Before summarizing the results and considering the implications of the research, we reiterate some of the limitations of the survey data. The data were gathered for a variety of reasons, not solely to measure civil liberty related implications of 9/11. Hence, important questions were not asked, most notably the number of personal civil liberty questions was limited and there were not enough questions to measure trust. Some questions asked in 2001 were not asked in 2002, and vice versa. Some questions, including the most important, were slightly changed in 2002. These limitations detract from the strength of the findings.

Nevertheless, the results were consistent with previous research intended to understand public perception and response to anthropogenic and natural hazards. In the context of the environmental hazards literature, terrorism is among the most dreaded of hazards, and if nuclear, chemical, and biological weapons are the terrorists' arsenal, then arguably terrorism may be the most dreaded environmental hazard. Shortly after 9/11, anger, fear, depression, and other emotions were widespread in the United States. People prayed more and couldn't stop watching television coverage of the events. Almost a quarter considered changing travel plans. It came as no surprise to find that two-thirds supported the idea of everyone carrying an identification card, almost 40% would allow access to credit card purchase records, and about a quarter of respondents favored allowing the government to monitor personal telephone and e-mail records.

Theory predicts and we found that these proportions would decrease without another event. But in fact, emotional levels remained high among a group of respondents who became suspicious, and who altered their behaviors to reduce their exposure to terrorism. In New York City, a small proportion began to store food and drugs, and handle their mail differently.

Research is needed to follow-up these results. The most obvious step is to extend this time series and add civil liberty actions and trust questions to instruments. Pursuing these findings through surveys is necessary but insufficient. Focus groups, and face-to-face in depth interviews is a priority because they are the only means of gaining detailed insights about the mental models people have constructed. We believe that insights about heuristics and how these are changed would be invaluable to those charged with the responsibility of determining what actions the public will support and resist in the effort to reduce the chances of successful terrorist attacks.

In this context, a high priority is to understand how the public's reactions to terrorism will interface with the new structures being constructed to manage terrorism (Amas 2002). Pew (1998) shows that the police and fire departments are among the most trusted sources of authority in the United States. Yet, the fear and suspicion engendered by the terrorism could lead to self-destructive forms of civil disobedience and reckless behaviors by some members of the public. Government officials at a minimum need to know how much information, of what type, and in what form and frequency is desirable to convey about terrorist plots and events. In essence, we need to be thinking about the mental models people have constructed about the interface of terrorist acts and government anti-terrorism programs to reduce the likelihood of terrorist events and to recover from them. These would be important components of measuring what Slovic (2002) has called "vulnerability" of different people and places.

A less immediate but important need arising from this research is to connect the public's concerns about terrorism, the economy and other environmental hazards. During the last 25 years, public concern about environmental protection has increased when the economy has been healthy, and when there is no active war (Greenberg 2004). In April 2003, a Gallup poll reported that 47% of Americans would give priority to environmental protection, even if it meant curbing economic growth. This proportion represents the lowest in a series that goes back over two decades. In January 2000, the proportion was 70% in response to the same question. Data from Gallup, Roper, Pew and other polls show that the environment vs. economy question presented above is symptomatic of a decline of public concern about the full spectrum of environmental concerns, including hazardous waste, ecological systems, and even public potable water supply. Yet these same surveys show that the public is pessimistic about the future health of the environment. We badly need a program of research that will try to understand the mental models that people create to cope with a multiplicity of environmental hazards. This paper demonstrates that the core of the psychometric paradigm and its progeny are central to unrav-

eling what surely are complex mental models people build to cope with a wide range of environmental threats.

Endnotes

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