AGGRESSIVE BEHAVIOR
Volume 33, pages 118–129 (2007)

Changes in Attitudes Towards War and Violence After September 11, 2001

Nicholas L. Carnagey* and Craig A. Anderson

Iowa State University, Ames, IA

Two inter-related studies examined the effect of the September 11, 2001, terrorist attacks on attitudes towards war and violence. A three-wave between-subjects analysis revealed that attitudes towards war became more positive after September 11, 2001 and remained high over a year afterwards. Self-reported trait physical aggression also rose after September 11. Attitudes towards penal code violence (PCV) became more positive immediately after September 11, but were somewhat reduced a year afterward. A two-wave within subjects study revealed that war attitudes became even more positive at 2 months post-September 11. Attitudes towards PCV became less positive during this time period, but only for women. Other aggression-related attitudes were not affected in either study. These studies demonstrate that a large-scale event can change attitudes, but those attitudes must be directly relevant to the event. Aggr. Behav. 33:118–129, 2007. © **2006 Wiley-Liss; Inc.**

Keywords: September 11; attitude change; war attitudes; violence attitudes; aggression

INTRODUCTION

Today, our fellow citizens, our way of life, our very freedom came under attack in a series of deliberate and deadly terrorist acts. The victims were in airplanes, or in their offices; secretaries, businessmen and women, military and federal workers; moms and dads, friends and neighbors. Thousands of lives were suddenly ended by evil, despicable acts of terror. President George W. Bush [2001]

President Bush spoke these words to the American public the evening of September 11, 2001, after the United States witnessed the largest terrorist attack against civilians in the nation's history. Early that morning, al-Qaeda terrorists hijacked four commercial jets. Two were flown into the World Trade Center towers, one into the Pentagon, and one crashed into the ground southeast of Pittsburgh, PA. Within 90 min of the first plane crash into the World Trade Center, the south tower collapsed. A short time later the north tower also collapsed. An attack that took years to plan and minutes to complete claimed the lives of thousands of civilians.

Many profound changes have occurred throughout the world as the direct results of this attack. Obvious examples include war in Afghanistan and Iraq, major changes in airport security measures, political realignments, and economic effects both local and worldwide. Many such changes have been repeatedly documented in thousands of news reports. Although it may seem obvious that profound changes in attitudes towards aggression would also result from such a momentous and widely publicized event, it is not obvious what form those changes would take, or how changes in aggression attitudes would relate to other aggression-related variables. Furthermore, a review of the research literature on attitude change revealed relatively little about the long-term effects of dramatic events.

At the time of the 9/11 attacks, we were in the process of studying attitudes towards violence and their relations with self-reported aggressive behavior, aggressive affect, and aggressive thought patterns. We modified these studies in order to gain a glimpse into the specificity and generality of changes in aggression attitudes across time and

*Correspondence to: N.L. Carnagey, Department of Psychology, Iowa State University, W112 Lagomarcino Hall, Ames, IA 50010. E-mail: vasser@iastate.edu

Received 22 March 2005; Accepted 8 June 2005

Published online 6 February 2007 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/ab.20173.

domain as a result of the attacks and the ensuing world events. We adopted the Attitude Representations Theory perspective for this work in large part because its focus on knowledge structures and cognitive processes matches our General Aggression Model (GAM) work on how various situational and personological factors combine in the generation of human aggression. Furthermore, this theoretical approach makes fairly clear predictions about the effects of highly salient events on attitude formation and change.

PRIMING AND SALIENCY EFFECTS ON ATTITUDES

The concept that attitudes are affected by the exemplars that the individual brings to mind has been prevalent in psychology for decades [e.g., Asch, 1940; Lord and Lepper, 1999; Smith and Zárate, 1992]. The basic idea is that when asked to report attitudes on a particular subject, people tend to access representative exemplars to assist in the evaluation process.

Attitude Representations Theory

The Attitude Representations Theory (for a thorough review, see Lord and Lepper, 1999] contends that attitude consistency towards a specific stimulus will depend on both the perception of the stimulus and the "subjective representation" of the stimulus in the person's memory [Lord and Lepper, 1999]. For instance, if someone was asked their attitudes toward criminals, the individual would activate a mental representation of a "criminal" (for example, "Al Capon") to assist in their evaluation. If the individual were to activate the same "criminal" representation at a later time, the attitude elicited should be consistent with the previous attitudes. If the representation differs during the second elicitation (for example, "Arthur Andersen", a former top Enron executive), the attitude is more likely to differ. Context and saliency also can play a role in the process of attitude formation. If particular exemplars are more salient and easily retrieved in memory, attitudes will most likely be based on these examples (for review on content accessibility on judgment, see Schwarz, 1998). For example, Sia et al. [1997] demonstrated that people who accessed the same exemplars at two different time periods (1 month apart) displayed a higher level of attitude consistency.

Attitude Changes After Highly Publicized Events

Exemplar-based theories of attitudes predict that attitude consistency will be reduced when different exemplars are activated at different time periods. One way that this can occur is when new highly salient exemplars are added into memory. Quite often, highly publicized events take place in society that can alter our existing exemplars, therefore, altering our attitudes towards those particular issues. However, because such events cannot be predicted, there has been relatively little research on this phenomenon. Nonetheless, three such highly publicized events have received some empirical attention. These are Irvin "Magic" Johnson's announcement of being HIV positive, the criminal trial of O.J. Simpson, and the Oklahoma City bombing.

HIV and Magic Johnson. In 1991, Irvin "Magic" Johnson made a nationally televised announcement that he was infected with the HIV virus. This announcement increased peoples' awareness of AIDS and changed their perceived risk to contract HIV [Brown et al., 1996; Zimet et al., 1993]. Stigmas of HIV-infected individuals also decreased as a result of Magic Johnson's public announcement [Herek and Capitanio, 1997].

A meta-analysis conducted by Casey et al. [2003] demonstrated that Johnson's announcement increased adults' estimates of vulnerability to HIV infection while decreasing children's estimates of vulnerability. This study discovered that both children and adults held more positive attitudes towards HIV-infected persons, became more knowledgeable about HIV, increased intentions to reduce risky HIV-related behaviors, and desired to obtain more information about HIV. This meta-analysis also revealed reductions in HIV-related risky behaviors and increases in HIV testing after Johnson's announcement.

O.J. Simpson trial. O.J. Simpson was tried for two counts of first-degree murder in a highly publicized trial that lasted from 1994 to 1995. Nier et al. [2000] demonstrated that racist attitudes towards blacks increased in white subjects after the "not guilty" verdict was released. This increase only occurred for subjects who believed the verdict should have been "guilty" or were undecided on verdict preference. Research also revealed that judgments of jury bias and system fairness were significantly affected after the verdict of "not guilty" was decided [Brigham and Wasserman, 1999]. Other research has demonstrated a hind-sight bias of

verdict prediction, showing that people recalled predicting a higher chance of acquittal after the actual verdict had been decided than they originally predicted before the verdict [Bryant and Brockway, 1997; Demakis, 1997].

Oklahoma City bombing. The 1995 domestic terrorist bombing on the Murrah Federal Building in Oklahoma City is the only modern-day terrorist attack in the United States that rivals the September 11 attacks. This terrorist act was on a smaller scale, but still claimed the lives of 176 people and injured hundreds more. Due to the unexpected nature of this event, most, if not all, of the research conducted on the psychological effects of the bombing was conducted in surveys and interviews performed after the bombings. The majority of this research examined the effect of the bombing on levels and severity of Post-Traumatic Stress Disorders (PTSD), showing increases in PTSD connected to direct and indirect exposure to the bombing [i.e., North et al., 1999; Pfefferbaum et al., 1999, 2000; Tucker et al., 2000, 2002]. Other research related to this bombing examined factors that predicted volunteer behavior [St. John and Fuchs, 2002], increases in drug use [i.e., Pfefferbaum and Doughty, 2001; Pfefferbaum et al., 2002], various coping strategies [Benight et al., 2000; Pargament et al., 1998], and the effect of media coverage on viewers [Pfefferbaum et al., 2001, 2003]. Despite the large amount of research centered around this event, no research examined the effects of the event on attitudes towards violence and war.

GENERAL AGGRESSION MODEL

A theory developed in recent years that is relevant to aggression and aggression-related variables is the GAM [see Anderson and Bushman, 2002; Anderson and Carnagey, 2004; Anderson and Huesmann, 2003]. GAM integrates various theories important to the aggression domain: social learning theory and related social cognitive theory concepts [e.g., Bandura, 1971, 1973; Bandura et al., 1961, 1963; Mischel, 1973; Mischel and Shoda, 1995], Berkowitz's Cognitive Neoassociationist Model [1984, 1990, 1993], Dodge's social information-processing model [e.g., Crick and Dodge, 1994; Dodge and Crick, 1990], Geen's affective aggression model [1990, 2001], Huesmann's script theory [Huesmann, 1986], and Zillmann's excitation transfer model [1983]. GAM emphasizes a cyclical interaction pattern between the person and the environment. Three main points compose the cycle: *input variables* of person and situation, *present internal state* of the individual, and *outcomes* resulting from various appraisal and decision processes.

Although GAM has primarily been used to explain and predict behavior (typically aggressive behavior), it also has a lot to say about more primary processes, such as cognition, affect, and arousal. GAM will be briefly outlined and then components of the Attitude Representation Theory will be integrated into GAM to gain a more complete perspective on how salient events result in changes in attitudes towards war and violence.

Input Variables

GAM suggests that a person's thoughts, affect, and behavior are based on two main kinds of input variables: the person and the situation. The person variables are the individual characteristics brought into a particular situation. They can include traits, current states, beliefs, attitudes, values, sex, scripts, and aggressive personality. The situation variables are the environmental surroundings and can include such factors as informational cues (including aggressive cues), provocation, pain, rewards, and frustration.

Routes

Input variables, sometimes interactively, affect an individual's appraisal of a situation and ultimately affect the behavior performed in response to that appraisal, primarily by influencing the present internal state of the individual. According to GAM, there are three main routes of impact in which present internal states may be altered: cognition, affect, and arousal.

Cognition. Input variables can alter the present internal state by priming particular constructs and making them more available to the individual. These constructs can be temporarily or chronically accessible [e.g., Bargh et al., 1988; Sedikides and Skowronski, 1990]. When a construct is repeatedly accessed, the threshold required to activate that construct decreases. The result is that the construct will be more easily activated and used in later situations; it becomes chronically accessible. A situational input (e.g., televised footage of terrorism) results in a temporary lowered threshold of activation, making the construct accessible for a short time. Repeated exposure, either from the outside (e.g., televised footage, discussion with other people) or inside (e.g., mentally rehearsing or thinking about it) results in a longer lasting decrease in the activation threshold.

Affect. Input variables can also have impact on the individual's affective states, which can then influence interpretations of the environment and selected behavioral responses. For example, exposure to violent video games [Carnagey and Anderson, 2005], violent music lyrics [Anderson et al., 2003], and violent movie clips can increase state hostility [Anderson, 1997; Bushman, 1995; Bushman and Geen, 1990; Hansen and Hansen, 1990]. Nonmedia input variables, such as pain [Anderson et al., 1998] and uncomfortable temperatures [Anderson et al., 1996] can also increase state hostility. Person variables, such as trait hostility, are also related to state hostility [Anderson, 1997; Anderson et al., 1998].

Arousal. Arousal can influence aggressive behavior in three primary ways. First, arousal increases can intensify an already dominant action tendency. For example, Geen and O'Neal [1969] demonstrated that exposure to loud noise can increase both arousal and aggression. A second way is through Zillmann's [1983] excitation transfer theory. When arousal from one source (e.g., exercise) is misattributed to a provoking or frustrating secondary source, it can produce a stronger response motivated by anger. The third way is that extreme levels of arousal (whether they are high or low) could be aversive and increase aggression similar to other aversive or painful stimuli [Anderson and Huesmann, 2003].

Interaction between routes. And of course, these three dimensions of internal state—affect, cognition, arousal—often influence each other. For example, Schachter and Singer [1962] popularized the idea that an individual's current cognitions and arousal can influence affect. Affect can also influence cognition and arousal [Bower, 1981]. Furthermore, people use their affective state to guide inference and judgment processes [Forgas, 1992; Schwarz and Clore, 1996].

Outcomes. An appraisal of the current situation and a selection of an appropriate response usually precede an emitted behavior. Depending on the situational constraints, this evaluation process could be rather hasty and automatic, or it could have considerable thought placed into it. If the former occurs, a more impulsive behavior will occur whereas if the later occurs, a more thoughtful behavior will be the result.

After a behavior has been emitted, the social and physical environment surrounding the individual will also respond and that response can modify the person variables, environment variables, or both in the next episodic cycle. This modification of input variables could provide reinforcement or inhibition of similar future behavior [Anderson and Bushman, 2002].

GAM and Attitudes Towards War and Violence

Attitudes are influenced by the exemplars that individuals activate when they think about a particular topic. Before the 9/11 attacks, when American college students were questioned about their attitudes towards war and violence, they had to access exemplars of non-recent past events. The only US war during the lives of most 9/11/2001 college students was Operation Desert Storm. Other large wars (e.g., Korean War, WWI, WWII, Viet Nam), were only available to these individuals via books and television programs. However, post 9/11, these individuals had a new exemplar added to their knowledge of war and violence. The largest terrorist attack on American soil had just taken place and our "information age" allowed coverage 24 hr per day. When these college students were now asked about war and violence, a new set of salient exemplars were available. These exemplars not only provided new information, but also provided new mental images (e.g., planes flying into buildings, people jumping from the buildings to their deaths, towers collapsing, looks of pain on the soot-covered victims). It is reasonable to expect these new exemplars, which are so vivid, personal, and recent, could influence one's attitudes towards war and violence.

As mentioned before, GAM's primary use has been to predict behavioral responses when particular environment and person variables were present. However, GAM can also focus on the influence of input variables on the present internal state, particularly attitudes and beliefs. Attitudes can be affected by both person variables and environment variables. Chronic accessibility of specific exemplars can affect an individual's attitudes towards a particular topic. For example, after the 9/11 attacks, Americans spent a considerable amount of time thinking about the attacks, watching the coverage on television, listening to reports on the radio, and reading about the terrorists and victims in magazines and newspapers. Americans spent so much time thinking about this national event that these cognitions could have become chronically accessible. Environmental variables, in the form of television reports, radio reports, newspaper articles, public conversations, were also quite salient shortly after the terrorist attacks. With these cues present in the environment, the recent attacks were highly likely to

affect an individual's judgments concerning war and violence. Of course, exemplars related to very different forms of violence, such as corporal punishment of children (CPC), would not have been much affected by the 9/11 events and news reports of those events. Therefore, it seems unlikely that the 9/11 events would have much (if any) impact on attitudes towards these other types of violence.

PSYCHOLOGICAL RESEARCH ON THE SEPTEMBER 11 ATTACKS

Similar to the Oklahoma City bombing, The September 11 attacks spawned several psychological inquiries into psychological effects of the attacks, including character strengths [Peterson and Seligman, 2003], heart rate variability [Lampert et al., 2002], work attitudes [Ryan et al., 2003], stress and other psychological trauma [Saylor et al., 2003; Schlenger et al., 2002; Schuster et al., 2001; Silver et al., 2002; Wayment, 2004], social interactions and psychological adjustment [Mehl and Pennebaker, 2003], trust in government [Chanley, 2002], opinions of domestic policies [Schildkraut, 2002], and presidential support [Schubert et al., 2002]. To date, no empirical research has surfaced concerning attitudes towards war and violence.

PRESENT RESEARCH OVERVIEW

For several years we had been working on refining an attitudes towards violence measure, and had administered the measure along with a trait aggression scale to a large sample of college students in the Fall of 2000. We also were in the process of preparing to administer the same scales to a similar sample in September, 2001, and were able to do so a short time after the attacks. This formed the basis of the two studies reported in this article.

There are both empirical and theoretical reasons to expect changes in violence and war attitudes as a result of the September 11 attacks. Because the attacks were initially framed by politicians and the press as criminal (terrorist) acts of war, we expected attitudes towards war and attitudes endorsing violence against criminals (i.e., penal code violence (PCV)) to become more positive after the September 11 attacks. Because the criminal aspects shifted to the background over time, as the war aspects moved more sharply to the foreground, we also expected to see some moderation in attitudes towards violence against criminals over time, at least, relative to war attitudes. Because the events surrounding September 11 specifically concerned issues of terrorism, severe criminal behavior (i.e., mass murder), and war, we did not expect to see change in attitudes towards other forms of non-related violence, such as attitudes towards CPC or attitudes towards aggression against intimate partners (INT).

In addition to measuring various attitudes towards violence, we also included standard measures of trait aggression, anger, and hostility. These variables typically correlate well with measures of attitudes towards aggression [e.g., Anderson et al., 2006; Bonacci et al., 2004]. Our interest in trait aggression, anger, and hostility in the present context was two-fold. First, we were interested in changes potentially attributable to the 9/11 attacks. Second, we wanted to test the stability of the relations between attitudes toward violence and self-reported aggression, anger, and hostility across this time period. More specifically, we examined whether the slopes linking aggressive attitudes to aggressive behavior, anger, and hostility systematically changed as a result of the 9/11 attacks and subsequent world events. Such changes would appear as time $\times$ attitude interactions in the prediction of aggression, anger, and hostility.

In Study 1, attitudes towards violence and self-reported aggressive behavior, anger, and hostility were assessed in three between-subjects groups each fall from 2000 to 2002. Study 2 examined these same variables in a single group of participants during two time periods after September 11 (September 20, 2001; November 2001]. Because of the unexpected nature of the event, these two studies could not be designed to test fine-grained distinctions between a variety of attitude change theories. In this sense, the present studies are necessarily largely descriptive. However, they do allow tests of three larger-scale hypotheses: (a) a major event (9/11 attacks) will significantly alter relevant attitudes; (b) these changes will persist if the event or its aftermath remain visible over time; (c) the attitude changes will be fairly specific in scope.

STUDY 1: METHODS

Participants

Participants were volunteers from introductory psychology courses; they received extra credit for participation. Participants who completed all relevant scales were retained. Testing occurred in November 2000 (301 men and 479 women), September 20, 2001 (472 men and 562 women), and September 2002 (350 men and 539 women). These

three groups did not differ in age, M's = 19.4, 19.6, 19.5, $F(2, 2{,}633) = .33$, $P > .05$.

Procedure

Participants completed the Aggression Questionnaire [AQ; Buss and Perry, 1992] and the Revised Attitudes Toward Violence Scale [RATVS; Anderson et al., 2006]. These scales were completed along with many other unrelated questionnaires during large mass testing sessions for introductory psychology students.

RATVS. The four subscales are violence in war (WAR; 12 items; $\alpha = .79$; e.g., "War is often necessary"), PCV (seven items; $\alpha = .83$; e.g., "Prisoners should have more severe labor sentences than they do"), CPC (eight items; $\alpha = .87$; e.g., "Children should be spanked for temper tantrums"), and intimate violence INT (12 items; $\alpha = .89$; e.g., "It is all right for a partner to choke the other if insulted or ridiculed"). Possible scores range from 1 to 5, with higher scores indicating a more positive attitude towards violence.

Although these subscales are intercorrelated, multiple studies have confirmed that they form distinct attitude domains, and that they predicted aggressive behavior [Anderson et al., 2006]. Furthermore, they predict aggression above and beyond predictions based on the five-factor model of personality [Bonacci et al., 2004].

AQ. The four subscales are trait physical aggression (nine items; $\alpha = .86$; e.g., "Once in a while I can't control the urge to strike another person"), trait verbal aggression (five items; $\alpha = .80$; e.g., "When people annoy me, I may tell them what I think of them"), trait anger (seven items; $\alpha = .80$; e.g., "When frustrated, I let my irritation show"), and trait hostility (eight items; $\alpha = .86$; e.g., "At times I feel I have gotten a raw deal out of life"). Possible scores range from 1 to 7, with higher scores indicating greater levels of trait aggression, anger, and hostility.

RESULTS

ATVS and AQ subscales were analyzed using 2 (sex: men, women) × 3 (wave: November 2000, September 2001, September 2002) between-subjects analyses of variance. All wave × sex interactions were removed from the final models due to nonsignificance, F's$(2, 2{,}697) < 1.6$, P's $> .05$. Specific contrasts between all three waves were also conducted. Results are in Table I.

ATVS

WAR. The wave main effect on WAR attitudes was significant, $F(2, 2{,}699) = 30.12$, $P < .0001$, suggesting that the September 11 attacks had an impact on these attitudes. WAR attitudes became more positive between November 2000 and September 2001, $F(1, 2{,}699) = 59.75$, $P < .0001$. These attitudes shifted back somewhat between September 2001 and September 2002, $F(1, 2{,}699) = 23.33$, $P < .0001$. Nonetheless, WAR attitudes in September 2002 were still higher than in November 2000, $F(1, 2{,}699) = 8.12$, $P < .01$. Men reported more positive WAR attitudes than women, M's = 3.10 and 2.78, $F(1, 2{,}699) = 201.09$, $P < .0001$, $d = .55$.

PCV. PCV attitudes also were affected by wave, $F(2, 2{,}699) = 4.40$, $P < .05$. Participants became more accepting of violence towards criminals from November 2000 to September 2001, $F(1, 2{,}699) = 8.76$, $P < .01$. Subsequently, these attitudes also moved back towards their original levels,

TABLE I. Attitudes Towards Violence and Aggression Questionnaire Means and Effect Sizes, Study 1

	Attitudes towards violence				Aggression questionnaire			
	War	PCV	CPC	INT	PA	VA	Anger	Hos
Wave means								
1: Nov. 2000 $n = 780$	2.82	2.83	2.02	1.41	2.63	3.48	2.69	2.87
2: Sept. 20, 2001 $n = 1{,}034$	3.03	2.93	2.06	1.41	2.87	3.61	2.82	3.04
3: Sept. 2002 $n = 889$	2.96	2.88	2.05	1.40	2.80	3.49	2.79	2.92
Wave effect sizes: d								
1 vs. 2	.37***	.14**	.07	.01	.24***	.11*	.13**	.15**
2 vs. 3	−.13***	−.07	−.03	−.03	−.08	−.11*	−.03	−.11*
1 vs. 3	.24**	.07	.04	−.03	.16***	.00	.10*	.05

*$P < .05$.
**$P < .01$.
***$P < .001$.

although not significantly, between September 2001 and September 2002, $F(1, 2{,}699) = 2.22$, $P > .05$. There was no significant difference between PCV attitudes in November 2000 vs. September 2002, $F(1, 2{,}699) = 2.19$, $P > .05$. Men held more positive PCV attitudes than women, M's = 2.76 and 3.00, $F(1, 2{,}699) = 72.17$, $P < .0001$, $d = .33$.

CPC. Attitudes towards CPC were not affected by wave, $F(2, 2{,}699) = .95$, $P > .05$. Contrasts revealed no significant differences between any two waves, F's$(1, 2{,}699) < 2.0$, P's $> .05$. Men held more positive CPC attitudes, M's = 2.29 and 1.79, $F(1, 2{,}699) = 365.41$, $P < .0001$, $d = .74$.

INT. Similarly, attitudes towards INT were unaffected by wave, $F(2, 2{,}699) = .27$, $P > .05$. No contrasts were significant, F's$(1, 2{,}699) < 1.0$, $P's > .05$. Men held more positive INT attitudes, M's = 3.28 and 2.25, $F(1, 2{,}699) = 669.06$, $P < .0001$, $d = .68$.

Summary. The September 11 attacks apparently led to more positive attitudes towards war and towards violence against criminals, but had no effect on less relevant attitudes concerning other types of violence (e.g., CPC or INT). This fairly specific effect on attitudes makes sense, in that the initial framing of the attacks was that they represented a war on America and were criminal acts. The fact that the war attitude changes were the largest and most persistent also make sense from this framing perspective; the war aspect was more heavily represented than the criminal aspect from the outset, and still remains very salient in the news, whereas the criminal aspect has receded somewhat as wars in Afghanistan and Iraq became the focus of daily news.

Aggression Questionnaire

Physical aggression. Trait physical aggression varied by wave, $F(2, 2{,}699) = 12.85$, $P < .001$. Trait physical aggression increased from November 2000 to September 2001, $F(1, 2{,}699) = 25.20$, $P < .0001$. It decreased slightly between September 2001 and September 2002, but not significantly, $F(1, 2{,}699) = 2.69$, $P > .05$. It remained higher in September 2002 than in November 2000, $F(1, 2{,}699) = 11.08$, $P < .001$. Men reported more trait physical aggression than women, M's = 3.10 and 2.39, $F(1, 2{,}699) = 669.06$, $P < .0001$, $d = 1.01$.

Verbal aggression. Trait verbal aggression also varied by wave, $F(2, 2{,}699) = 3.87$, $P < .05$. It increased from November 2000 to September 2001, $F(1, 2{,}699) = 5.66$, $P < .05$. However, it declined between September 2001 and September 2002, $F(1, 2{,}699) = 5.57$, $P < .05$, essentially returning to pre-attack levels. The November 2000 and September 2002 trait verbal aggression scores did not differ, $F(1, 2{,}699) = .01$, $P > .05$. Men were more trait verbally aggressive than women, M's = 3.69 and 3.34, $F(1, 2{,}695) = 56.67$, $P < .0001$, $d = .44$.

Anger. Trait anger differed by wave, $F(2, 2{,}699) = 3.95$, $P < .05$. Anger increased from November 2000 to September 2001, $F(1, 2{,}699) = 7.45$, $P < .01$. Anger remained high between September 2001 and September 2002, $F(1, 2{,}699) = .41$, $P > .05$. Anger was significantly higher in September 2002 compared to November 2000, $F(1, 2{,}699) = 4.20$, $P < .05$. Men and women did not differ in their levels of anger, M's = 2.78 and 2.73, $F(1, 2{,}695) = 1.67$, $P > .05$, $d = .25$.

Hostility. Trait hostility was affected by wave, $F(2, 2{,}699) = 5.55$, $P < .01$. It increased from November 2000 to September 2001, $F(1, 2{,}695) = 10.11$, $P < .01$; decreased between September 2001 and September 2002, $F(1, 2{,}699) = 5.33$, $P < .05$; and did not differ between November 2000 and September 2002, $F(1, 2{,}699) = .85$, $P > .05$. Men and women did not differ, both M's = 2.93.

Summary. The self-reported levels of trait physical aggression across the three time periods matched the shifts in attitudes towards war fairly closely. It also appears that all four aspects of trait aggressiveness were increased by the terrorist attacks. What is less clear is the extent to which these changes, based on self-reports, reflect actual increases in trait aggression, anger, and hostility, or whether norms about admitting to such negative behaviors, emotions, and thoughts changed. Though our data cannot answer this question, both of these possibilities are quite intriguing and worthy of additional research attention.

Relation Between ATVS and AQ

We conducted a series of regressions with the total AQ score as criterion variable and wave, sex, and ATVS scores as predictors. The first series included wave × ATVS subscale interactions to determine whether the relations between attitudes towards violence and trait aggressiveness changed over time. None of these interactions were significant, F's$(2, 2{,}896) = .14$, 1.31, .62, and 2.39, P's $> .05$. Thus, the relations between attitudes towards violence and AQ scores were remarkably consistent across time.

We then ran regressions on each AQ subscale to see which attitude subscales predicted trait aggressiveness, and to estimate how much of the wave effects on AQ scores could be accounted for by the

attitude subscales. After controlling for the four subscales of the ATVS, the effect of wave on trait physical aggression remained significant, $F(2, 2,695) = 7.23$, $P < .001$, but the sum of squares accounted for by wave was reduced by 51%. PCV, WAR, CPC, and INT were all positively related to trait physical aggression, b's = .11, .23, .27, and .27, F's(1, 2,695) = 13.21, 35.00, 67.71, and 34.16, P's < .001.

The effect of wave on trait verbal aggression was reduced by 39% after controlling for ATVS, and became non-significant, $F(2, 2,695) = 2.39$, $P > .05$. WAR and CPC were positively related to trait verbal aggression, b's = .15 and .11, F's(1, 2,695) = 11.77 and 9.35, P's < .01. PCV and INT were not uniquely related to trait verbal aggression, F's(1, 2,695) = 1.25 and .59, P's > .05.

The effect of wave on anger was reduced by 48% after controlling for ATVS, and became non-significant, $F(2, 2,695) = 2.16$, $P > .05$. PCV, WAR, CPC, and INT were positively related to anger, b's = .13, .10, .07, and .31, F's(1, 2,695) = 16.19, 7.15, 4.10, and 44.61, P's < .05.

The effect of wave on hostility was reduced by 36% after controlling for ATVS; the wave effect remained significant, $F(2, 2,695) = 3.75$, $P < .05$. PCV, CPC, and INT were all positively related to hostility, b's = .14, .10, and .33, F's(1, 2,695) = 16.26, 7.34, and 39.55, P's < .05; WAR was not, $F(1, 2,695) = 2.28$, $P > .05$.

Summary. The September 11, 2001 attacks increased self-reported trait aggression, anger, and hostility, relative to reports from a similar population taken a year earlier. It is unclear from these self-reports whether the frequency or severity of trait physical and verbal aggression actually increased, or whether there were merely changes in reporting criteria used by our participants. However, the short amount of time between the attacks and the 2001 questionnaire session (a bit over 1 week) means that if there were actual and immediate increases in aggressive behavior caused by the 9/11 attacks, the reporting processes used by the September 20, 2001 participants to complete the AQ items heavily emphasized very recent aggressive acts rather than their typical past behaviors. Interestingly, the relations between attitudes towards violence and self-reported trait aggression, anger, and hostility did not change as a result of the 9/11 attacks, and at a correlational level the attitudes "explained" major portions of the variance in trait aggression, anger, and hostility. Study 2 further examined these issues along with changes in attitudes towards violence, utilizing a within-subjects design.

STUDY 2: METHODS

Participants and Procedure

Participants in the September 20, 2001, survey were resampled 2 months later (November 2001); 331 women and 300 men again completed the ATVS and AQ.

RESULTS

ATVS

WAR. WAR attitudes became more positive between September 20, 2001 and November 2001, M's = 3.04 and 3.11, $F(1, 629) = 11.56$, $P < .001$, $d = .13$. This occurred despite that fact that WAR attitudes were already elevated on September 20, relative to similar participants a year earlier (as shown in Study 1). The sex × wave interaction was not significant, $F(1, 629) = 2.95$, $P > .05$.

PCV. PCV attitudes dropped from September 2001 to November 2001, M's = 2.96 and 2.88, $F(1, 629) = 15.07$, $P < .0001$, $d = -.16$. There was also a sex × wave interaction, $F(1, 629) = 6.49$, $P < .02$. Women's attitudes towards PCV dropped over the 2 months, M's = 2.85 and 2.73, but men's PCV attitudes remained about the same, M's = 3.08 and 3.05.

CPC. CPC attitudes did not change between September 2001 and November 2001, M's = 2.05 and 2.06, $F(1, 629) = .46$, $P > .05$, $d = .03$. The sex × wave interaction was not significant, $F(1, 629) = .30$, $P > .05$.

INT. INT attitudes did not change between September 2001 and November 2001, M's = 1.41 and 1.40, $F(1, 629) = .16$, $P > .05$, $d = -.02$. The sex × wave interaction was not significant, $F(1, 629) = 1.00$, $P > .05$.

Summary. These short-term (2 month) within-subjects results on attitudes towards violence match the longer-term between-subjects changes in Study 1 quite well. They provide further evidence that a major event can affect important attitudes, and that this effect is fairly specific to the event. That is, attitudes towards violence in war became even more positive during this 2-month time span, but attitudes towards violence in non-war domains did not do so.

Aggression Questionnaire

Physical aggression. Trait physical aggression dropped from September 2001 to November 2001, M's = 2.75 and 2.57, $F(1, 617) = 30.40$,

$P < .0001$, $d = -.22$. The sex × wave interaction was not significant, $F(1, 617) = .03$, $P > .05$.

Verbal aggression. Trait verbal aggression also dropped from September 2001 to November 2001, M's = 3.54 and 3.44, $F(1, 617) = 7.15$, $P < .01$, $d = -.11$. The sex × wave interaction was not significant, $F(1, 617) = .46$, $P > .05$.

Anger. Self-reported anger dropped from September 2001 to November 2001, M's = 2.81 and 2.69, $F(1, 617) = 12.82$, $P < .001$, $d = -.14$. The sex × wave interaction was not significant, $F(1, 617) = .12$, $P > .05$.

Hostility. Hostility dropped from September 2001 to November 2001, M's = 3.08 and 2.92, $F(1, 617) = 18.44$, $P < .0001$, $d = -.17$. The sex × wave interaction was not significant, $F(1, 617) = .04$, $P > .05$.

Summary. These short-term trait aggressiveness results also match the longer-term results fairly well, in that the means all peaked at the administration that took place immediately after the September 11 attacks in 2001. This further supports the idea that our participants may have been heavily weighting recent events in their lives when completing the "trait" aggressiveness scales.

GENERAL DISCUSSION

Based on GAM and Attitude Representations Theory, we predicted that endorsement of violence in war attitudes would increase after the 9/11 attacks compared to attitudes previous to the event. Also, because of the "criminal" context that the 9/11 attacks were originally presented to the public, we predicted that endorsement of PCV punishments would also increase. Both of these hypotheses were supported. Attitudes towards war became more positive after September 11 and remained high even a year afterwards. This elevation in support for violence in war occurred in both studies.

We also predicted that attitude changes brought about by the attacks would be relatively specific to the event. This was borne out in two ways. First, violence attitudes concerning children and intimates were largely unaffected. Second, because the context of the attacks seemed to change from a war and criminals frame to an almost exclusively war frame, we expected that penal code attitudes would return back to baseline more quickly than war attitudes. This appeared to be the case in both studies.

In sum, all three of our main predictions were supported. The September 11 attacks significantly altered relevant attitudes, especially war attitudes. These changes persisted over time. The attitude changes were fairly specific in scope.

Another aspect of the data worth mentioning is that even though the 9/11 attacks did have significant impact on attitudes towards war and violence, these attitudes began to return toward the original baseline within a year of the event. Due to the horrific nature and impact that the 9/11 attacks had on American society, the average person would probably predict an extensive long-term change in attitudes towards war and violence. However, both the between- and the within-subjects data suggest that those attitudes were beginning to return to normal within a year. This finding fits with previous research that individuals are quite poor at predicting affective states over a long period of time [e.g., Gilbert et al., 1998; Wilson et al., 2000].

The September 11 attacks also resulted in self-reported increases in aggression, anger, and hostility. Such results are perhaps not too surprising, given that increasing stress is often linked to increases in aggressive behavior and in feelings of anger and hostility [Anderson and Huesmann, 2003; Berkowitz, 1993]. And as noted earlier, caution is warranted in interpreting the self-reported changes in aggressive behavior. To investigate the validity of these data, we examined the violent crime rates provided by the FBI's Uniform Crime Reports [FBI.gov, 2004]. The Uniform Crime Report provides monthly rates of four types of violent crimes, murder, assault, robbery, and rape. We examined these by calculating the percentage of violent crimes that took place each month for both (A) an average of a 3-year span prior to 2001 (1998–2000) and (B) the year of 2001. We then subtracted each 3-year average for each month from each corresponding month in 2001. We found an increase in percentage of annual violent crimes that began in September 2001 (.133% increase), peaked in October 2001 (.525% increase), and declined in November and December 2001 (.375% increase and .275 increase, respectively). These data suggest that there was a relative increase in aggression from Americans shortly after September 11.

Both studies also showed evidence of near-complete recovery (or no initial effect) in the non-war attitude domains and in self-reported hostility. And though there is evidence of some recovery in war attitudes and self-reported trait physical aggression, that recovery was certainly not complete by the end of these studies.

One intriguing question hinted at earlier concerns the role of issue framing in producing this pattern of changes in attitudes towards violence. Specifically,

attitudes towards war and towards violence against people breaking the law (PCV) both became more positive initially, and the initial framing of the attacks (by the President and a wide range of news services) heavily emphasized war themes, and in the early days also frequently mentioned criminal themes. The attitudes representation theory approach, as well as GAM and other knowledge structure approaches, all posit that such salient framing effects are important determinants of attitudes and attitude change.

Similarly, it seems to us that the US general public, as well as our elected representatives, have been quite easily led into costly wars in Afghanistan and Iraq, despite powerful protests by traditional allies worldwide. Is the ease with which these political decisions were made a reflection of shifts in attitudes towards war? If so, and if the attitude shifts were brought about by careful attempts to frame the September 11 attacks in a way that supports war, what has this entire sequence done to the thoughtful, long-range consideration of political, economic, and moral consequences that we all presumably hope would precede anything so drastic as all-out war? Similarly, recent revelations of American soldiers abusing Iraqi prisoners also raise questions about the possible effects of 9/11 events, the framing of those events, and consequent violent attitude changes on behavior of American military personnel. Though these questions lie beyond the scope of the present studies, we believe that our data not only answer some basic questions about the effects of September 11, but also raise additional questions of fundamental importance to modern society.

ACKNOWLEDGMENTS

We would like to thank Charles Lord for his suggestions on earlier versions of this manuscript.

REFERENCES

Anderson CA, Anderson KB, Deuser WE. 1996. Examining an affective aggression framework: Weapon and temperature effects on aggressive thoughts, affect, and attitudes. Pers Soc Psychol Bull 22:366–376.

Anderson CA, Benjamin AJ, Wood PK, Bonacci AM. 2006. Development and testing of the attitudes toward violence scale: Evidence for a four-factor model. Aggr Behav 32:122–136.

Anderson CA, Bushman BJ. 2002. Human aggression. Annu Rev Psychol 53:27–51.

Anderson CA, Carnagey NL. 2004. Violent evil and the general aggression model. In: Miller A (ed): ''The Social Psychology of Good and Evil,'' New York: Guilford Publications, pp 168–192.

Anderson CA, Carnagey NL, Eubanks J. 2003. Exposure to violent media: The effects of songs with violent lyrics on aggressive thoughts and feelings. J Pers Soc Psychol 84:960–971.

Anderson CA, Huesmann LR. 2003. Human aggression: A social–cognitive view. In: Hogg MA, Cooper J (eds): ''Handbook of Social Psychology,'' London: Sage Publications, pp 296–323.

Anderson KB, Anderson CA, Dill KE, Deuser WE. 1998. The interactive relations between trait hostility, pain, and aggressive thoughts. Aggr Behav 24:161–171.

Anderson CA. 1997. Effects of violent movies and trait irritability on hostile feelings and aggressive thoughts. Aggr Behav 23:161–178.

Asch SE. 1940. Studies in the principles of judgments and attitudes: II. Determination of judgments by group and by ego standards. J Soc Psychol, S.P.S.S.I. Bull 12:433–465.

Bandura A. 1971. Psychotherapy based upon modeling principles. In: Bergin AE, Garfield SL (eds): ''Handbook of Psychotherapy and Behavior Change,'' New York: Wiley.

Bandura A. 1973. ''Aggression: A Social Learning Theory Analysis,'' Englewood Cliffs, NJ: Prentice-Hall.

Bandura A, Ross D, Ross SA. 1961. Transmission of aggression through imitation of aggressive models. J Abnorm Soc Psychol 63:575–582.

Bandura A, Ross D, Ross SA. 1963. Imitation of film-mediated aggressive models. J Abnorm Soc Psychol 66:3–11.

Bargh JA, Lombardi WJ, Higgins ET. 1988. Automaticity of chronically accessible constructs in person × situation effects on person perception: It's just a matter of time. J Pers Soc Psychol 55:599–605.

Benight CC, Freyaldenhoven RW, Hughes J, Ruiz JM, Zoschke TA, Lovallo WR. 2000. Coping self-efficacy and psychological distress following the Oklahoma City bombing. J Appl Soc Psychol 30:1331–1344.

Berkowitz L. 1984. Some effects of thoughts on anti- and prosocial influence of media events: A cognitive neoassociationist analysis. Psychol Bull 95:410–427.

Berkowitz L. 1990. On the formation and regulation of anger and aggression. Am Psychol 45:494–503.

Berkowitz L. 1993. ''Aggression: Its causes, consequences, and control,'' New York: McGraw-Hill.

Bonacci AM, Abraham WT, Anderson CA. 2004. Developing a Model of Aggressive Personality. Annual Convention of the American Psychological Association: Chicago, Illinois, May 27–30.

Bower G. 1981. Mood and memory. Am Psychol 36:129–148.

Brigham JC, Wasserman AW. 1999. The impact of race, racial attitude, and gender on reaction to the criminal trial of O.J. Simpson. J Appl Soc Psychol 29:1333–1370.

Brown BR Jr, Baranowski MD, Kulig JW, Stephenson JN, Perry B. 1996. Searching for the Magic Johnson effect: AIDS, adolescents, and celebrity disclosure. Adolescence 31:253–264.

Bryant FB, Brockway JH. 1997. Hindsight bias in reaction to the verdict in the O.J. Simpson criminal trial. Basic Appl Soc Psychol 19:225–241.

Bushman BJ. 1995. Moderating role of trait aggressiveness in the effects of violent media on aggression. J Pers Soc Psychol 69:950–960.

Bushman BJ, Geen RG. 1990. Role of cognitive–emotional mediators and individual differences in the effects of media violence on aggression. J Pers Soc Psychol 58:156–163.

Buss AH, Perry M. 1992. The aggression questionnaire. J Pers Soc Psychol 63:452–459.

Carnagey NL, Anderson CA. 2005. Effects of reward and punishment in violent video games on aggressive thoughts, affect, and behavior. Psych Sci 16:882–889.

Casey MK, Allen M, Emmers-Sommer T, Sahlstein E, Degooyer D, Winters AM, Wagner AE, Dun T. 2003. When a celebrity contracts a disease: The example of Earvin "Magic" Johnson's announcement that he was HIV positive. J Health Commun 8:249–265.

Chanley VA. 2002. Trust in government in the aftermath of 9/11: Determinants and consequences. Polit Psychol 23:469–483.

Crick NR, Dodge KA. 1994. A review and reformulation of social information processing mechanisms in children's adjustment. Psychol Bull 115:74–101.

Demakis GJ. 1997. Hindsight bias and the Simpson trial: Use in introductory psychology. Teach Psychol 24:190–191.

Dodge KA, Crick NR. 1990. Social information-processing bases of aggressive behavior in children. Pers Soc Psychol Bull 16:8–22.

Forgas JP. 1992. Affect in social judgments and decisions: A multiprocess model. Adv Exp Soc Psychol 25:227–275.

Geen RG. 1990. "Human Aggression," Pacific Grove, CA: McGraw Hill.

Geen RG. 2001. "Human Aggression," 2nd edition, Buckingham, England: Open University Press.

Geen RG, O'Neal EC. 1969. Activation of cue-elicited aggression by general arousal. J Pers Soc Psychol 11:289–292.

Gilbert DT, Pinel EC, Wilson TD, Blumberg SJ, Wheatley TP. 1998. Immune neglect: A source of durability bias in affective forecasting. J Pers Soc Psychol 75:617–638.

Hansen CH, Hansen RD. 1990. The influence of sex and violence on the appeal of rock music videos. Commun Res 17:212–234.

Herek GM, Capitanio JP. 1997. AIDS stigma and contact with persons with AIDS: Effects of direct and vicarious contact. J Appl Soc Psychol 27:1–36.

Huesmann LR. 1986. Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. J Soc Issues 42:125–139.

Lampert R, Baron SJ, McPherson CA, Lee FA. 2002. Heart rate variability during the week of September 11, 2001. J A Med Assoc 288:575.

Lord CG, Lepper MR. 1999. Attitude representation theory. Adv Exp Soc Psychol 31:265–343.

Mehl MR, Pennebaker JW. 2003. The social dynamics of a cultural upheaval: Social interactions surrounding September 11, 2001. Psychol Sci 14:579–585.

Mischel W. 1973. Toward a cognitive social learning reconceptualization of personality. Psychol Rev 80:252–283.

Mischel W, Shoda Y. 1995. A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. Psychol Rev 102:246–268.

Nier JA, Mottola GR, Gaertner SL. 2000. The O. J. Simpson criminal verdict as a racially symbolic event: A longitudinal analysis of racial attitude change. Pers Soc Psychol Bull 26:507–516.

North CS, Nixon SJ, Shariat S, Mallonee S, McMillen JC, Spitznagel EL, Smith EM. 1999. Psychiatric disorders among survivors of the Oklahoma City bombing. J Am Med Assoc 282:755–762.

Pargament KI, Smith BW, Koenig HG, Perez L. 1998. Patterns of positive and negative religious coping with major life stressors. J Sci Stud Religion 37:710–724.

Peterson C, Seligman M. 2003. Character strengths before and after September 11. Psychol Sci 14:381–384.

Pfefferbaum B, Doughty DE. 2001. Increased alcohol use in a treatment sample of Oklahoma City bombing victims. Psychiatry: Interpers Biol Process 64:296–303.

Pfefferbaum B, Nixon SJ, Tucker PM, Tivis RD, Moore VL, Gurwitch RH, Pynoos RS, Geis HK. 1999. Posttraumatic stress responses in bereaved children after the Oklahoma City bombing. J Am Acad Child Adolescent Psychiatry 38:1372–1379.

Pfefferbaum B, Seale TW, McDonald NB, Brandt EN Jr, Rainwater SM, Maynard BT, Meierhoefer B, Miller PD. 2000. Posttraumatic stress two years after the Oklahoma City bombing in youths geographically distant from the explosion. Psychiatry: Interpers Biol Process 63:358–370.

Pfefferbaum B, Nixon SJ, Tivis RD, Doughty DE, Pynoos RS, Gurwitch RH, Foy DW. 2001. Television exposure in children after a terrorist incident. Psychiatry: Interpers Biol Process 64:202–211.

Pfefferbaum B, Vinekar SS, Trautman RP, Lensgraf SJ, Reddy C, Patel N, Ford AL. 2002. The effect of loss and trauma on substance use behavior in individuals seeking support services after the 1995 Oklahoma City bombing. Ann Clin Psychiatry 14:89–95.

Pfefferbaum B, Seale TW, Brandt EN Jr, Pfefferbaum RL, Doughty DE, Rainwater SM. 2003. Media exposure in children one hundred miles from a terrorist bombing. Ann Clin Psychiatry 15:1–8.

Ryan AM, West BJ, Carr JZ. 2003. Effects of the terrorist attacks of 9/11/01 on employee attitudes. J Appl Psychol 88:647–659.

Saylor CF, Cowart BL, Lipovsky JA, Jackson C, Finch AJ Jr. 2003. Media exposure to September 11: Elementary school students' experiences and posttraumatic symptoms. Am Behav Sci 46:1622–1642.

Schachter S, Singer J. 1962. Cognitive, social, and physiological determinants of emotional state. Psychol Rev 69:379–399.

Schildkraut DJ. 2002. The more things change…American identity and mass and elite responses to 9/11. Polit Psychol 23:511–535.

Schlenger WE, Caddell JM, Ebert L, Jordan BK, Rourke KM, Wilson D, Thalji L, Dennis JM, Fairbank JA, Kulka RA. 2002. Psychological reactions to terrorist attacks: Findings from the National Study of Americans' Reactions to September 11. J Am Med Assoc 288:581–588.

Schubert JN, Stewart PA, Curran MA. 2002. A defining presidential moment: 9/11 and the rally effect. Polit Psychol 23:559–583.

Schuster MA, Stein BD, Jaycox LH, Collins RL, Marshall GN, Elliott MN, Zhou AJ, Kanouse DE, Morrison JL, Berry SH. 2001. A national survey of stress reactions after the September 11, 2001, terrorist attacks. N Engl J Med 345:1507–1512.

Schwarz N. 1998. Accessible content and accessibility experiences: The interplay of declarative and experiential information in judgment. Pers Soc Psychol Rev 2:87–99.

Schwarz N, Clore GL. 1996. Feelings and phenomenal experiences. In: Higgins ET, Kruglanski AW (eds): "Social Psychology: Handbook of Basic Principles," New York: Guilford Press, pp 433–465.

Sedikides C, Skowronski JJ. 1990. Towards reconciling personality and social psychology: A construct accessibility approach. J Soc Behav Pers 5:531–546.

Sia TL, Lord CG, Blessum KA, Ratcliff CD, Lepper MR. 1997. Is a rose always a rose? The role of social category exemplar change in attitude stability and attitude-behavior consistency. J Pers Soc Psychol 72:501–514.

Silver RC, Holman EA, McIntosh DN, Poulin M, Gil-Rivas V. 2002. Nationwide longitudinal study of psychological responses to September 11. J Am Med Assoc 288:1235–1244.

Smith ER, Zárate MA. 1992. Exemplar-based model of social judgment. Psychol Rev 99:3–21.

St. John C, Fuchs J. 2002. The heartland responds to terror: Volunteering after the bombing of the Murrah Federal Building. Soc Sci Quart 83:397–415.

Statement by the president in his address to the nation. (2001, September 11). Retrieved October 20, 2003, from http://www.whitehouse.gov/news/releases/2001/09/20010911-16.html

Tucker P, Pfefferbaum B, Nixon SJ, Dickson W. 2000. Predictors of post-traumatic stress symptoms in Oklahoma City: Exposure, social support, peri-traumatic responses. J Behav Health Serv Res 27:406–416.

Tucker P, Pfefferbaum B, Doughty DE, Jones DE, Jordan FB, Nixon SJ. 2002. Body handlers after terrorism in Oklahoma City: Predictors of posttraumatic stress and other symptoms. Am J Orthopsychiatry 72:469–475.

Uniform Crime Reports. Federal Bureau of Investigation. Retrieved November 1, 2004, from http://www.fbi.gov/ucr/ucr.htm

Wayment HA. 2004. It could have been me: Vicarious victims and disaster-focused distress. Pers Soc Psychol Bull 30: 515–528.

Wilson TD, Wheatley T, Meyers JM, Gilbert DT, Axsom D. 2000. Focalism: A source of durability bias in affective forecasting. J Pers Soc Psychol 78:821–836.

Zillmann D. 1983. Arousal and aggression. In: Geen R, Donnerstein E (eds): ''Aggression: Theoretical and empirical reviews,'' Vol. 1, New York: Academic Press, pp 75–102.

Zimet GD, Lazebnik R, DiClemente RJ, Anglin TM, Williams P, Ellick EM. 1993. The relationship of Magic Johnson's announcement of HIV infection to the AIDS attitudes of junior high school students. J Sex Res 30:129–134.