PREDICTORS OF ADJUSTMENT TO SEPTEMBER 11th, 2001 AND THE ANTHRAX ATTACKS

by

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Abstract

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While the effects of September 11th, 2001 have been heavily studied, effects of the Anthrax attacks that directly followed has not been a widespread focus of research. This set of events, however, may be more representative of terrorism as it exists across the world, and there is both theoretical and empirical evidence indicating that responses to the Anthrax attacks may be worse than to 9/11.

The following secondary data analysis was conducted to identify factors that predict adjustment to the Anthrax attacks among individuals with only vicarious exposure. Based on available empirical and theoretical data, it was hypothesized that individual level of perceived threat from anthrax as well as mental and behavioral adjustment outcomes would all be predicted by initial reactions to the Anthrax attacks. Initial reactions tested included individual perceptions of who was to blame for 9/11 and the Anthrax attacks, whether or not something could have been done to prevent them, amount of worry about exposure to anthrax through the mail, amount of threat perceived from 9/11 as it relates to anthrax threat, and amount of exposure to media coverage of 9/11 and the Anthrax attacks. Mental health outcomes of adjustment included individual

perceived stress, symptoms of posttraumatic stress, positive and negative change in outlook, worrying about themselves, and worrying about others. Behavioral outcomes of adjustment included level of perceived safety in entering government or office buildings in the wake of the Anthrax attacks, as well as amount of change in monitoring for illness symptoms. It was hypothesized that initial reactions to the Anthrax attacks would predict perceived threat, mental, and behavioral outcomes of adjustment. Furthermore, threat was expected to mediate reactions to the Anthrax attacks and adjustment outcomes, while mental health outcomes were also expected to mediate the relationship between initial reactions and behavior outcomes of adjustment.

Questionnaires were mailed out 2-3 months after the initial Anthrax attacks, and again 8 months after. Participants completed the questionnaires and mailed them back to the researchers. Linear mixed models were employed to test the hypotheses while not excluding data for participants that returned only the first questionnaire.

Initial reactions predicted perceived anthrax threat and adjustment outcomes. More worry about mail exposure to anthrax and more threat from 9/11 predicted perceived anthrax threat. In addition, they predicted perceived stress, posttraumatic stress, negative outlook change, worry about themselves, perceived safety, and illness monitoring. Furthermore, perceived threat mediated these relationships. Posttraumatic stress symptomatology also predicted more perceived safety, and posttraumatic stress mediated the relationships between 9/11 and anthrax threat on perceived safety. Overall, perceived anthrax threat was a powerful indicator of mental and behavioral adjustment outcomes and should be an area of initial assessment to determine individuals at risk for more chronic symptomatology. These results were discussed within the context of why the Anthrax attacks were related to 9/11 but nevertheless produced different effects. Alternative ideas were presented which may help explain some unexpected findings.

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Chapter 1

Introduction

The Anthrax Attacks

The events on 9/11 and the Anthrax attacks produced significant distress and adverse mental and physical health outcomes in primary victims and first responders, as well as in members of the general population who were vicariously exposed (Holman & Silver, 2008; Dougall, Hayward, & Baum, 2005; Schuster, Stein, Jaycox, et al., 2001). However, these events did not produce symptoms for all individuals who were exposed, and some were more likely to suffer effects than others. Although quite a bit of research has been conducted to identify risk factors for direct victims of traumas, researchers have debated whether the experiences of those with only vicarious (indirect) exposure are the same (North & Pfefferbaum, 2002) and we still know little about which of these individuals may be vulnerable to chronic symptoms. In a world of highly accessible television and internet, where the potential for encountering circumstances and consuming media that can produce vicarious traumatization is rampant, this research is more important now than ever.

The following dissertation was a secondary data analysis of a study which assessed the symptoms of individuals vicariously exposed to the September 11th, 2001 terrorist attacks (9/11), the war on terror, and the Anthrax bioterrorism attacks. Data were collected in the immediate months following the Anthrax attacks and again at eight months after the event. These data were analyzed to determine the influence of factors such as blame of others and worry about exposure on mental and behavioral health outcomes, and whether or not amount of perceived threat of exposure to anthrax functioned as a mediator of these relationships. Specifically, anthrax and 9/11-related media exposure, worry about anthrax exposure through the mail, and thoughts

surrounding who was to blame for the Anthrax attacks were assessed to determine their influence on perceived threat from the Anthrax attacks and their subsequent influence on perceived stress, posttraumatic stress symptoms, changes in outlook, worry for the future, change in perceived safety, and change in monitoring of anthrax illness symptoms. Acts of terrorism and mass violence are ideal for the study of these relationships because they produce a wide degree of impact among exposed individuals and increase the likelihood that vicarious exposure may produce symptoms. It is also timely: The recent bombing in Boston, ricin attacks, and revelations regarding post-9/11 electronic personal data tracking by the government have placed concerns about the impact of terrorist acts on individuals and their behavior back into the limelight.

The potential for impact, combined with the current debate regarding long-term symptomatology from vicarious traumatization and its degree of similarity to direct trauma exposure, makes studying the mediators of impact from vicarious traumatization essential. The following review was meant to make the case that the Anthrax attacks are worth more study, provide support for the notions that terrorism and technological events which involve the potential for toxic exposure are more likely than other types of events to cause symptoms and change in behavior among individuals, that individuals who are not directly exposed to these events nevertheless still suffer from a variety of symptoms, that the situation is even worse when terrorism involves toxic substances (typically called bioterrorism), and that perceived threat is likely to function as a mediator of the impact of events on symptoms and behavior change. Importantly, this study was the first to assess the impact of vicarious exposure due to threat in the context of an ongoing event (the Anthrax attacks) embroiled within reactions to a larger traumatic event (9/11). This is ironic because terrorism is often conducted as an ongoing threat. This ongoing threat

couched within a larger event may therefore be more representative of terrorism (Spilerman & Stecklov, 2008).

The Event and Participants

The citizens of the United States experienced a sequence of major and potentially traumatic events during the fourth quarter of 2001. On September 11, 2001, hijacked airplanes destroyed the former World Trade Center, heavily damaged the Pentagon building, and killed nearly three thousand people. The 9/11 event and its impact continues to be widely studied. Two weeks later, another series of events began that would become indelibly linked to 9/11. Up to five letters were initially mailed to news media organizations that contained spores of anthrax in coarse powdery form, and a coded letter meant to inform the openers that they had been exposed and that the letters were related to 9/11. Two weeks later, two letters were sent to senators Tom Daschle and Patrick Leahy that contained similar messages including the comment “you cannot stop us”. In total, 22 individuals were confirmed to have been exposed to anthrax, with eleven of them having inhaled the spores. Of these eleven, five died (see Figure 1-1). Between these two sets of letters (on October 7, 2001), the United States also initiated military air strikes against terrorists within Afghanistan, in retaliation for 9/11.

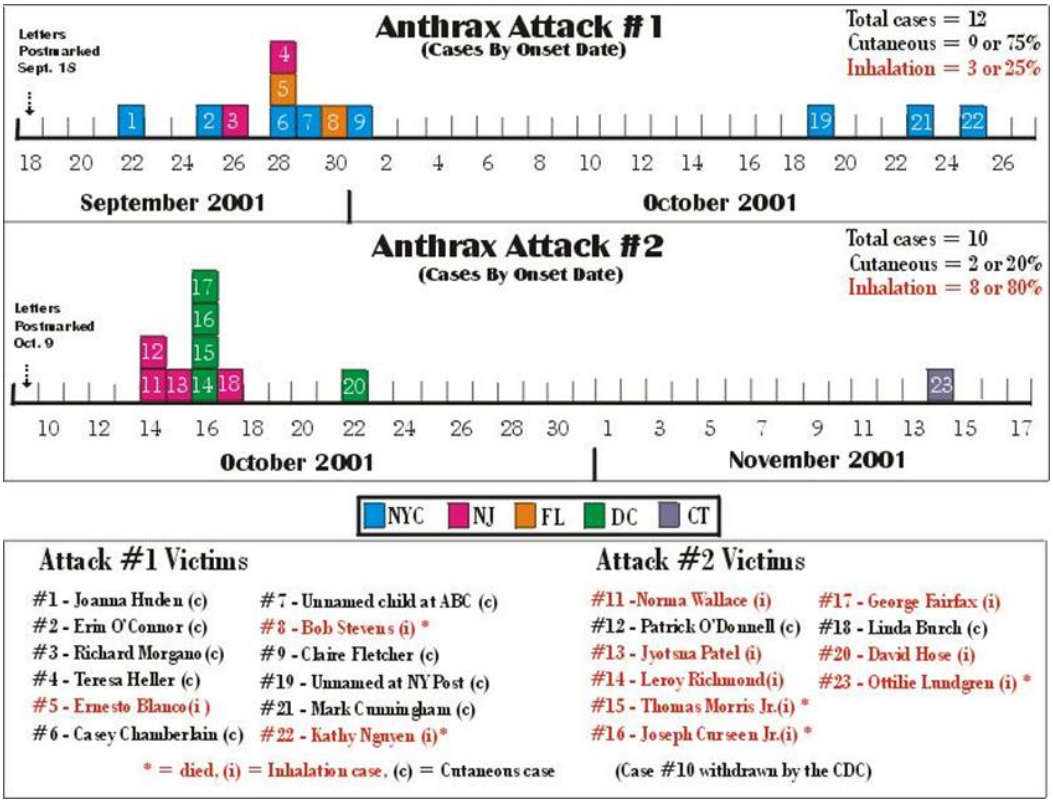

Figure 1-1 Times, locations, and types of exposures to the Anthrax attacks. Reprinted with permission from Wikimedia Commons by Mirror Vax, Based on Public CDC Data (Permission: PD-USGOV-HHS-CDC)

This unprecedented series of events was widely covered within all news media circles (see Table 1-1). In short, the news coverage of these circumstances was widespread, dour, and may have contributed to individuals' suffering in the aftermath. A statement by then-UK Prime Minister Tony Blair on the 1-year anniversary of 9/11 portrays the impact of the events on Americans and the world as a whole:

> September 11 was, and remains, above all an immense human tragedy. But September 11 also posed a momentous and deliberate challenge not just to America but to the world at large. The target of the terrorists was not only New York and Washington but the very values of freedom, tolerance and decency which underpin our way of life. (Tony Blair, 1-year Anniversary, 9/11/2002; BBC News, 2002)

Table 1-1 Common News Reports in the Weeks after 9/11 and the Anthrax Attacks

Direct event reporting
Who the perpetrators were
Defining terrorism and how these events were similar or unique
Why terrorists may be similar or different to other individuals
Whether or not 9/11 and the Anthrax attacks were related
Who the current suspects were
What Americans can do to ensure that the terrorists "don't win"
American Citizenry
Relationships between America and the world
Whether you can trust fellow citizens and the international community
How to monitor for potential terrorists
The impact and likelihood of anthrax exposure
The likelihood that future events would occur
What could be done to prevent future events and future exposure
The symptoms of anthrax and toxic substances as a whole
What toxic substances could be "weaponized" or used by terrorists
What might happen if chemical and biological weapons were to be used

The first assessment of this study occurred 2-4 months after the first set of anthrax letters were mailed. None of the sample had been directly exposed to 9/11, the Anthrax attacks, or the war on terrorism. Nevertheless, these events were still fresh within the minds of the American people and were still being heavily discussed amid concerns that new Anthrax bioterrorism attacks could occur. By this time, the evidence that had been collected pointed heavily to a U.S. domestic scientist or spy having perpetrated the Anthrax attacks (though the FBI was not sure; U. S. Department of Justice, 2010), and reporters were beginning to claim that there were clear suspects, but aside from claiming that the Anthrax attacks were not likely from international terrorists, the FBI had not publicly named any (Miller and Broad, 2002). In the immediate aftermath of both the first and second sets of letters, discussion had been centered on whether the Anthrax attacks originated from international terrorists, and possibly from Al Qaeda as

part of a coordinated attack. Public-facing statements by leaders contributed to views such as these:

> There is some indication, and I don't have the conclusions, but some of this anthrax may -- and I emphasize may -- have come from Iraq. (John McCain on the Late Show with David Letterman, 10/18/2001; Khanna, 2008)

Therefore, some individuals who were not privy to current details surrounding the anthrax investigations still suspected that the 9/11 perpetrators were involved. Although many studies have assessed the impact of 9/11, the inclusion of reactions to the Anthrax attacks is rare. This omission is unfortunate because it appears likely that bioterrorism produces different, and possibly worse, effects than pure terrorism events such as 9/11. In order to understand the potential impact on individuals, a discussion of the characteristics of terrorism, toxic exposure, vicarious exposure, perceived threat, and mechanisms of vicarious exposure through perceived threat follows.

Terrorism and Mass Violence are Different from other Disasters

Researchers have long considered the implications of the type of disastrous event to which individuals are exposed. Traditionally, researchers have conceptualized traumatic events as a whole to be different based on whether the event has a manmade or technological component versus whether the event is of natural origin. Primarily, natural events differ from technological events in their controllability, predictability, and identifiable low-point. Although there is growing recognition that natural events such as climate change are influenced by human industrial activities (Noyes et al., 2009), we rarely have a high degree of control over natural events. Earthquakes, floods, hurricanes, typhoons, tornados, and volcanoes are not perceived as possible to prevent. This is not the case with technological events, which are caused by things that humans have produced. These things were initially under human control, and if they cause harm it is because somebody, perhaps humanity, lost control. Power plants and oil drills are not

expected to explode, manufacturing plants are not expected to leak noxious gases into the air, and airplanes are not expected to fall out of the sky, because we have built and maintained these things to ensure that such events do not happen. Warning systems for natural events, such as Doppler radar, seismographs, and others, typically are aimed to minimize damage from the event. In reality, we do anticipate human-built systems to fail from time to time, but the elaborate warning and monitoring systems are designed to prevent disastrous technological events from occurring at all. Whether or not the actual circumstances support it, there is a broad sense that someone, somewhere, is at fault if a technological disaster occurs (Baum, 1987; Baum, Fleming, and Davidson, 1983). Popular perception, for example, is that a partial meltdown would never have occurred at Three Mile Island had the nuclear reactor been maintained and the workers been vigilant (Baum, Gatchel, & Schaeffer, 1983; Gatchel, Schaeffer, & Baum, 1985).

Importantly, the majority of natural events have some clear low point. That is, there is an identifiable point at which the worst has already passed and recovery can begin in earnest. When events do not have a clear end-point, individuals do not have the ability to immediately work to return to previous life; they must instead continue to cope with the trauma over a period of time. Hurricanes, floods, and earthquakes end quickly (drought being one of a few clear exceptions). While some technological events such as motor vehicle accidents and explosions have a similar, clear low point, this is not usually the case when toxic elements are involved. Oil and chemical spills, nuclear fallout (or threat of it), and the like all carry continued worry of the chronic health implications of the event. Simultaneously, cleanup can be slow and difficult. It was for these reasons that researchers had long considered technological events involving toxic exposure to have a greater potential to be experienced as traumatic and to produce chronic reductions in mental and physical health. Though there has been some debate within the literature on

the level of impact of natural versus technological events, technological events appear to be more likely to involve a perception of unexpected loss of control (Baum, 1987), and recently it has been shown that when these events involve toxic exposure or worry of toxic exposure, individuals experience many worse symptoms and recovery is slower or may not occur (Swanson, In Progress)

Many characteristics of terrorism mirror those of manmade or technological disasters. As with technological events, they are manmade. They impact our sense of control over the environment because they signal a failure of systems specifically designed to prevent them. They are perceived as something that "should not have" occurred and therefore, are unpredictable. They also are more likely to involve toxic and carcinogenic exposure than natural events and when this happened, often lead to a long and difficult cleanup process. There often is no clear low point in which it was known that the worst had already passed (leading to worry about the future). In many ways it seems that terrorism could be another form of technological disaster, and this is how it was initially conceptualized (Baum, 1987; Baum, Fleming, & Davidson, 1983; Fleming & Baum, 1985; Swanson, In Preparation).

However, other characteristics of terrorism (especially mass violence) did not fit neatly into the mold of a typical technological event. Terrorism differed specifically in that an individual *deliberately* produced the event and attempted for others to notice it. Furthermore, the aftermath of such events appeared to be particularly gruesome (Norris et al., 2002), and evidence from individual acts of terrorism provided direct support for the notion that terrorism produces worse outcomes than other events. For example, victims of the Oklahoma City Bombing experienced high rates of posttraumatic stress disorder (PTSD; North et al., 1999), higher rates of smoking and alcohol use (Smith, Christiansen, Vincent, & Hann, 1999), and higher levels of stress and psychological distress (Smith et

al., 1999). Similar effects were found among victims of 9/11. Greater exposure to 9/11 predicted more symptoms of traumatization, negative life events, and alcohol abuse (Adams & Boscarino, 2006; Boscarino, Adams, Figley, Galea, & Foa, 2006). Additionally, individuals close to the World Trade Center site during 9/11 had high risk levels for PTSD and physical respiratory symptoms. Specifically, rescue and recovery workers had a high risk for respiratory symptoms (67%), PTSD (16%), and high levels of distress (8%; Farfel et al., 2008). Due to these characteristics, researchers now consider terrorism to be either separate from natural and technological disasters, or a subtype of technological disaster. The differences point to technological and manmade disasters having more chronic mental and physical health effects than natural disasters, terrorism to have the worst, and bioterrorism (because it also involves toxic substance exposure) to potentially have the absolute worst.

Reviews and meta-analyses have been conducted to determine the broad effects of exposure to disastrous events, and to address the original theoretical assumptions that terrorism and toxic exposure produce worse outcomes. In a pooled analysis of over 60,000 combined victims, Norris and colleagues found that acts of terrorism predicted worse outcomes than other types of disasters (Norris et al., 2002; Norris, Friedman, & Watson, 2002). In a meta-analysis of events that involved the potential for toxic exposure, it was found that having merely concern of exposure was sufficient to produce chronic mental and physical health outcomes (Swanson, In Preparation). Terrorism clearly should be considered separately from other events.

Regarding specifically why the characteristics of terrorism produce worse symptoms than other types, it has been postulated that the pure, malicious threat and seemingly random nature of terrorism functioned as a potent stressor, shattering long-held worldviews about the goodwill and beneficence of others, producing concomitant

posttraumatic stress, producing mental and physical health symptoms, and producing more change in health behaviors such as alcohol use (Janoff-Bulman & Frantz, 1997; Norris, Friedman, & Watson, 2002; Ursano, Norwood, Fullerton, Holloway, & Hall, 2003). Finally, it should be noted that although little research has existed specifically on bioterrorism events, what evidence does exist has indicated that the impact of bioterrorism has been severely detrimental, possibly due to its multi-faceted nature (Dougall, Hayward, and Baum, 2005).

Therefore it is clear, through both theoretical evidence and empirical data, that acts of terrorism and mass violence produce some of the worst physical and mental symptoms. Interestingly, many researchers contend that the effects of terrorism are still worse than suggested by the literature. Specifically, the most-studied terrorist attacks have occurred in Western Europe and the United States, where such events are both uncommon and more likely to exist as single attacks that garner much attention but do not typically represent continued threat. 9/11, the Oklahoma City bombing, the bombing of Pan-Am flight 103, the 2005 London train bombings, and the recent Boston marathon bombings, for example, all fit within this paradigm. Outside of these areas, however, acts of terrorism are commonly different from this. Terrorism worldwide is both underreported and under-researched. Importantly, it is also far less likely to exist as single attacks. Rather, terrorist acts commonly consist of multiple smaller terrorist acts from an elusive perpetrator or group of perpetrators over a longer period of time. The attacks are conducted specifically to evoke feelings of continuous threat and therefore represent a form of chronic terrorism (Spilerman and Stecklov, 2008). Thus, the chronic threat and health outcomes associated with terrorism have probably been underrepresented within the literature. As suggested by Spilerman and Stecklov (2008), more research needs to be conducted on the types of events that are representative of terrorism as it exists

across the world: Continuing, low rates of attacks with the intention of keeping people worried about the potential for future terrorism. Such events may result in a decreased likelihood of individuals being directly exposed but conversely, because the threat remains, increase the potential of effects due to vicarious exposure. While extreme forms of such events exist, such as the attacks during much of the 20th century in Northern Ireland and the continuing conflicts between Israel and Palestine, on a smaller scale the Anthrax attacks also represent chronic terrorism.

Demographic Factors Predicting Response to Disaster

Norris and colleagues (Norris et al., 2002; Norris, Friedman, & Watson, 2002) also conducted several analyses to determine individual-level risk factors for worse symptoms. Their analyses showed that women tend to report more chronic stress and posttraumatic stress than men for a variety of disaster types, including terrorism. In addition, children and adolescents tended to report more symptoms than adults. However, among adults, being of an older age predicted worse outcomes. While these effects were described more often among natural events (Norris, Friedman, Watson, et al., 2002), they were also found among technological events and terrorism and there was initially little evidence within the literature to suggest that demographic differences on impact would be different. It appeared that overall, men and young adults would have higher amounts of resilience than women, children, and older adults. However, the recent meta-analysis of events involving toxic exposure found that, among technological disasters that could involve toxic substances (Swanson, In Progress), there was only partial evidence to support the notion that women reported more mental and physical health symptoms than men and there was little evidence to support that differences existed based on age. The studies used within this meta-analysis did not involve acts of terrorism but unlike most of the samples within Norris and colleagues' works, did involve

toxic exposure. Furthermore, a small meta-analysis (only 23 studies) that solely included acts of terrorism found that younger individuals found the opposite effects for age: Younger individuals reacted more to exposure to media coverage of terrorism events than did older individuals (Houston, 2009). One study that specifically addressed the effects of gender and age on stress from 9/11 found that different coping strategies were employed based on both gender and age (Wadsworth et al., 2004). More emotion-focused coping strategies were employed as individuals became older but intrusive thoughts also increased across age. Women were able to benefit more from employment of the emotion-based coping strategies than men but when individuals employed disengagement as a coping strategy, only women reported worse symptoms. These complex relationships highlight the importance of considering differences based on type of event and call into question the findings of Norris et al. (Norris et al., 2002; Norris, Friedman, & Watson, 2002) when applied to specific events. Within events of terrorism and this study in particular, it is more plausible that those who were younger would report more symptomatology for all variables, save perhaps posttraumatic stress.

Vicarious Traumatization

A common question has been the degree to which traumatization exists and can produce physical and mental symptoms. Vicarious traumatization has traditionally been considered to be a form of posttraumatic response in which an individual, despite not being a direct victim of a traumatic event, experienced symptoms of posttraumatic stress due to empathic engagement and identification with the actual victims (Figley, 1995; McCann & Pearlman, 1990). This term has since been combined with others, such as secondary traumatization, and loosely extended to individuals who are only indirectly exposed to an event (i.e. labeled as vicarious regardless of the actual presence of empathic engagement). Vicarious exposure may, therefore, involve circumstances such

as hearing about the event and its victims, serving on a cleanup crew, and consuming radio or television news on the event (Dougall, Hayward, & Baum, 2005; Palm, Polusny, & Follette, 2004). Researchers have shown that vicarious exposure also produces symptoms of chronic stress (Schuster et al., 2001). A number of risk factors for greater symptomatology due to vicarious exposure have been identified, and these factors tended to be very similar to the risk factors for posttraumatic stress disorder (PTSD): a history of previous trauma, previous mental health status, presence of social support, coping styles (for example, avoidant coping, Ben-Zur, Gil, & Shamshins, 2012), and demographic factors such as age, gender, level of education, and marital status (Lerias & Byrne, 2003; Norris et al., 2002). Therefore, traumatization may occur in a wide range of individuals and indirect or vicarious traumatization may produce similar effects for the same reasons as direct exposure.

Despite these similarities, many researchers have panned the notion that vicarious traumatization could be considered a real trauma. Prior to the fourth version of the Diagnostic and Statistical Manual of Mental Disorders, such indirect forms of exposure did not actually qualify (American Psychiatric Association, 2000; North, Suris, Davis, & Smith, 2009). Additionally, since its inclusion, some researchers have advocated that the decision to include vicarious exposure should be reversed, citing several studies that have shown that PTSD was far less likely to occur among individuals who are not directly exposed (North & Pfefferbaum, 2002). Draft criteria for the fifth version of the Diagnostic and Statistical Manual of Mental Disorders exclude most forms of vicarious exposure as traumas (Calhoun et al., 2012).

Within acts of terrorism, there does appear to be a qualitative difference between direct and vicarious exposure. Levels of clinical diagnosis of posttraumatic stress disorder (PTSD) among individuals exposed to the events of 9/11, for example, declined rapidly

with further distance from the attack sites before leveling off (Galea, Vlahov, Resnick, et al. 2003; North, Pollio, Smith, et al., 2011). Although clinical diagnosis of PTSD has been less common among people vicariously exposed to trauma, these individuals do report subclinical PTSD symptomatology. They perceive threat from vicarious exposure, which is a requirement for perceiving the experience as a trauma (American Psychiatric Association, 2000) and they experience symptoms of posttraumatic stress arising from that threat (Gil & Caspi, 2006). For example, elevated levels of posttraumatic stress symptoms were present following vicarious exposure to the events of 9/11 even if clinical PTSD was not (Schuster, Stein, Jaycox, et al., 2001). Such elevations in posttraumatic symptom reporting due to vicarious traumatization have been shown across a number of different acts of terrorism (Lerias & Byrne, 2003; Palm, Polusny, & Follette, 2004). Similarly, other symptoms are experienced and do not drop as rapidly as clinical PTSD. The events on 9/11 did produce significant symptoms of chronic stress and distress (Schuster et al., 2001) as well as physical health complaints (Hassett & Sigal, 2002; Pulido, 2007; Friedberg, Adonis, & Suchday, 2007) among those who were not directly exposed. Finally, there is some evidence to indicate that the actual nature of the symptoms of posttraumatic stress is the same for those with vicarious exposure as those with direct exposure (Suvak et al., 2008). Therefore even if vicarious exposure may be qualitatively different from direct exposure, and may be less likely to produce clinical PTSD, vicarious exposure does produce symptoms of posttraumatic stress (that may simply be a smaller degree of the same reaction), does produce large amounts of chronic distress, and does produce physical symptoms.

Media Consumption as a Mechanism of Vicarious Traumatization

Viewing news media coverage of a disaster is one of the most common forms of exposure to the disaster, and researchers have long been interested in whether this

could produce vicarious traumatization. A growing number of researchers to date have shown that this was the case, although the degree of symptomatology has been relatively low compared to actual exposure (Ahern, Galea, Resnick, et al., 2002; Ben-Zur, Gil, & Shamshins, 2012; Dougall, Hayward, & Baum, 2005; Palm, Polusny, & Follette, 2004; Schuster et al., 2001). Overall, it appears that the increased coverage of the events, repeated display of violent imagery, and tendency for news media to serve as a reminder can indeed impact individuals negatively. A brief summary of the major research within this area as it applies to 9/11 and the Anthrax attacks is below.

Schuster and colleagues (Schuster et al., 2001) conducted a national survey of the stress that individuals experienced following the events of 9/11. They found that a large number of individuals changed their news media viewing habits in the immediate aftermath of 9/11. Both adults and children who reported higher levels of news media viewing and more discussion of the news also reported more symptoms of posttraumatic stress. Dougall, Hayward, and Baum (2005) found similar effects among individuals reporting posttraumatic stress symptoms related to news media exposure to the Anthrax attacks. Additionally, they found that later exposure to news media did not have the same level of impact on symptoms as exposure to news media that happened during the event up to the week after.

Similar findings are reported for ongoing terrorism occurring outside of the United States. For example, Ben-Zur, Gil, & Shamshins (2012) surveyed students in a section of Israel in which media coverage of the various terrorist attacks during the Israeli-Palestinian conflict was occurring. In the scope of this continuing conflict, the researchers again found that higher media exposure was related to higher distress and more symptoms of posttraumatic stress. Taken together, this research has supported the notion that exposure to news media following an event could produce physical and

mental health symptoms via vicarious exposure, but that the timing of news media exposure relative to the event is likely to be related to the amount of symptoms experienced (Dougall, Hayward, & Baum, 2005). Perhaps exposure to news media more than a week after the events did not produce similar outcomes because the events were perceived as resolved and therefore did not involve the same level of perceived threat.

Changes in Perceived Threat and Behavior Due to Media Consumption

Acts of terrorism and mass violence have been rare within the United States. The likelihood of being victimized (especially prior to the 9/11 attacks) was so remote that individuals typically did not spend their time concerned about their risk and safety (Slovic & Weber, 2002). Researchers have shown that individuals' perceptions of threat and the likelihood of future events were moderated in part by the amount of media coverage and mindshare that exists within the media (Kasperson, Kasperson, Pidgeon, & Slovic, 2003). That is, individuals would perceive greater threat when the media spent more time covering terrorism events and told individuals they were at greater risk, and when individuals spent more time consuming that media (Kasperson et al., 2003).

Indeed, this seemed to be the case. In the wake of 9/11, the subsequent beginning of the war on terror, and the start of the Anthrax attacks, news coverage of many aspects of domestic and international terrorism had heavily increased (Norris, Kern, & Just, 2003; Zelizer & Allan, 2011). Media coverage also included discussions of the unprecedented nature of these attacks and the changing perceptions of Americans on their actual risk for future exposure (Norris, Kern, & Just, 2003; Zelizer & Allan, 2011). Individuals were told, for example, to be wary of and report suspicious persons, and to be careful in opening mail because it could contain anthrax (Norris, Kern, & Just, 2003; Zelizer & Allan, 2011). This not only increased public interest in the events, but also appeared to increase individual perceptions of threat (Schuster et al., 2001) and caused

people to change their behaviors in response to perceived threat (Dougall, Hayward, & Baum, 2005; Dougall, Hayward, Roberts, and Baum, 2004). Because these changes corresponded to increased reports of chronic stress and symptoms of posttraumatic stress (Schuster et al., 2001; Dougall, Hayward, & Baum, 2005), it appeared that vicarious traumatization occurred in part due to changes in perceived threat from consuming news media related to terrorism and the behaviors engendered by such perceived threat. However it should be noted that changes in perceived threat do not explain all aspects of the influence of news media exposure: Media consumption still predicted symptoms even when media consumption did not change individuals' reports of perceived risk (Dougall, Hayward, & Baum, 2005).

There is, however, a fairly large amount of evidence that individual behavior is changed from viewing events (Case, 2012). News videos routinely and repeatedly display sensational aspects of a story. In the case of terrorist acts, this means displaying images of the event and of the victims. The extremeness of the event and its imagery produce thought and behavior changes among individuals viewing it (Ursano, McCaughey, Fullerton, and Raphael, 1995). Individuals increase their news media consumption behavior as an information seeking behavior (Case, 2012). However, they typically do not receive complete information (Case, 2012), and this produces concerns over who else may be involved, where they are located, and whether they will commit more acts. Individual perceptions of risk are increased as they continue receiving more information that only serves to tell them more terrorist acts could occur. Individuals begin wondering what can be done to reduce this risk, and media sources begin discussing this circumstance (Case, 2012). The impact of a bioterrorism event may increase this response (Benedek and Grieger, 2008; Dougall, Hayward, and Baum, 2005; Ursano et al., 2003). The likelihood of a terrorist attack being bioterrorism is minute, but individual

perceptions of that likelihood are even more minute. The insidious nature of using a normally undetectable toxic substance as a means of terror is all the more frightening to individuals (Benedek and Grieger, 2008). The effects of the substance are typically unknown, and individuals are confronted with the thought that they may already be exposed without knowing it. They may begin to take steps to find out whether they had been exposed and if they are experiencing illness symptoms that could be attributed to the substance, to determine the likelihood of future exposure, and to determine how to prevent future exposure (Case, 2012; Swain, 2012). Again, individuals may turn to news sources to provide answers on how to do this, but in this case, the uniqueness of the situation makes it especially unlikely that individuals would be given complete information. This extraordinary behavioral response, done in part to reassert control (Baum, Cohen, & Hall, 1993), is typical of an extraordinary situation. In the wake of the Anthrax attacks, for example, news media consumption soared (Swain, 2012). In this study, a number of measures indicative of these behavioral changes were included such as: Amount of 9/11 and anthrax media consumption, worry about exposure to anthrax through the mail, beliefs of whether or not the perpetrator was a domestic or international terrorist (based in part on news consumption), amount of perceived safety in entering government, office, or mail buildings, and change in monitoring for illness symptoms.

In sum, media consumption after a terrorist event predicts thoughts and behavior, but may not alone be responsible for producing symptoms. It is important to identify other, potentially related, factors that may be simultaneously involved in producing these symptoms. Blame of others and lack of trust in authority figures may serve this “third-variable” role.

Effects of Blame and Lack of Trust on Perceived Threat

Perhaps one of the most commonly-used mechanisms to maintain control over new and unanticipated circumstances is to assign causes for the circumstance (i.e. who to blame and why). This process of attributing cause has traditionally been considered an adaptive mechanism (Jones & Nisbett, 1971). Unfortunately, the correct attributions are not always made. In the wake of 9/11 (and to some extent the Anthrax attacks as well), Muslim communities were not involved but were nevertheless blamed and harassed across the United States, and the degree of aggression displayed during these interactions caused many individuals within the Muslim communities to fear for their lives (Abu-Ras & Abu-Bader, 2008; Poynting & Noble, 2004; Tyler & Thorisdottir, 2003). Then, a task-force commission charged with making changes to avoid another terrorist event on the scale of 9/11 found that deep-seated distrust between a number of government and local entities prevented the sharing of information which may have been used (Kean, 2004). These reactions to 9/11 were perhaps to be expected: Individuals, wishing to come to an understanding for how these heinous acts could have occurred, encountered incomplete information through their news media consumption that potentially lead to inaccurately-placed blame and mistrust. The excessive and inaccurate leveling of blame on others, and concluding that events could have been prevented, are both likely to produce negative outcomes. In the context of this research study, individuals may have still believed that the Anthrax attacks were conducted by foreign terrorists in opposition to the evidence available at the time.

An alternative possibility of the impact of blame on outcomes arose when considering one major principle of social identity theory: The “black sheep” effect (Marques, Yzerbyt, and Leyens, 1988). Under social identity theory, individuals are motivated to identify more closely with those they consider to be like themselves as a

mechanism of increasing self-esteem (Tajfel and Turner, 1979; Tajfel and Turner, 1986). This motivation to identify with one's ingroup has been used to explain many of the responses of the United States in the immediate aftermath of 9/11 (in particular, the calls for citizenry and some of the aggression displayed to the Muslim community; Kalkan, Layman, and Uslaner, 2009; Rodriguez-Carballeira and Javaloy, 2005). However this identification and increasing perceived similarity with one's ingroup makes it all the more salient when an individual within that ingroup produces deviant behavior. This person stands out from the crowd and challenges individuals' assumptions regarding the group status. Under this interpretation, individuals who identify that a domestic terrorist was the likely perpetrator may display increased symptomatology (especially regarding change in outlook, described below).

Although there has been relatively little research regarding the impact of blame and lack of trust in authority figures on physical and mental health outcomes, some does exist. Baum and colleagues (Davidson, Baum, & Collins, 1982; Baum, Cohen, & Hall, 1993; Prince-Embury, 2013) published a series of papers on the impact of the events surrounding the partial meltdown of Three Mile Island. Similar to what the 9/11 Commission found, the reporting of the events and lack of full information given to individuals caused people to lose trust in the city managers and power plant owners (Davidson, Baum, & Collins, 1982; Baum, Cohen, & Hall, 1993). This "information crisis" and notion that people were being misled are cited as one of the major factors that increased public fear and distress during and after the events at Three Mile Island (Baum, Cohen, & Hall, 1993). Prince-Embury (2013) reported that, although information interventions were effective at reducing the impact of such a crisis, much of the damage had already been done and people were already experiencing symptoms. It therefore appears likely that assigning blame on others and thinking that others could have

prevented a detrimental circumstance may bring about negative outcomes due to its influence on perceived threat. As the victims of Muslim communities following 9/11 would attest, this is especially likely when individuals arrive at inaccurate conclusions due to having received incomplete information from the media.

Other Effects of Vicarious Traumatization

Much of the research on the perceived impacts of vicarious traumatization and perceived threat has centered on chronic distress and symptoms of posttraumatic stress, but other outcomes are also possible. Changes in perspective and worry about the future, should they occur, may be more stable outcomes. Furthermore these changes may be particularly detrimental for the future if they are negative. Conversely, if they are positive, they may potentially serve as a resiliency factor for future events. In the final sections of this introduction, positive and negative changes in outlook will be discussed briefly, followed by aspects of worry for the future about the self and about society as a whole.

Positive and Negative Outlook Changes in Response to Traumatic Events

A majority of individuals typically have possessed a positive outlook on life and a general perspective that the intentions of people were good. Overall, researchers have suggested that maintaining such positive viewpoints is beneficial for individuals because it results in lower stress levels and in higher mental and physical health relative to individuals who do not carry such viewpoints (Linley & Joseph, 2004). However, encountering terrorism, mass violence, and other traumatic events can shatter such worldviews (Janoff-Bulman & Frantz, 1997). While victims of traumatic events (especially terrorism which was conducted with malice) have often adopted a more neutral or negative worldview after this shattering, some have instead increased their positive views (Tedeschi & Calhoun, 1996). These differential effects on worldview are important to consider because there are a number of health-related implications of change in

worldviews, and maintaining a positive outlook after such events seems to have a number of benefits. Maintaining a positive outlook may lead to better outcomes in the future by reducing the likelihood of experiencing posttraumatic stress symptoms following a trauma, by reducing the health impact of these symptoms, and by promoting recovery following such events. Each of these circumstances will be briefly discussed.

Direct positive relationships on health, for example, have been found when individuals are able to maintain a positive outlook for the future. In a group of prisoners of war followed over a 37-year period, maintaining a positive outlook was the largest predictor of never having had a psychiatric diagnosis (Segovia, Moore, Linnville, Hoyt, & Hain, 2012). Similarly, Butler, Blasey, Garlan, et al. (2005) found that some individuals responded to the 9/11 attack by increasing their positive outlook, and that when this happened it was related to better initial mental health outcomes and a reduction of symptoms over time (Butler et al., 2005). Maintaining or increasing a more positive outlook throughout a traumatic event and its recovery may therefore have functioned as a resilience factor that kept individuals from suffering too greatly. Other studies have found that maintaining a positive outlook has stress buffering effects similar to those regularly described in the literature on social support (Cohen & Wills, 1985). U.S. Army combat veterans, for example, who reported increased negative outlook also reported more work-related impairment, but that impairment was not seen among those who maintained a positive outlook (Thomas, Britt, Odle-Dusseau, & Bliese, 2011). Therefore, change in outlook following vicarious exposure is an important diagnostic factor to consider.

Macro versus Micro Worry in Response to Traumatic Events

In the wake of 9/11, the war on terror, and the onset of the Anthrax attacks, Americans may have worried about the threat of future events and potential harm and loss. These worries may have been associated with poorer mental and physical health

outcomes (c. f. Davey & Tallis, 1994). Investigators have proposed that the effects of worry are situational, influenced by whether the individual worries about the self or ingroup (micro) versus the wider society (macro; Boehnke, Schwartz Stromberg, & Sagiv, 1998; Schwartz, Sagiv, & Boehnke, 2000).

Researchers have primarily conceptualized micro worry as detrimental to mental health, akin to anxiety, but macro worry as either inconsequential or beneficial to personal mental and physical health. However, 9/11 and the Anthrax attacks made membership as a U.S. citizen highly salient, and individuals worried about the collective group while also considering the role of themselves within the group. In this context, expressing such empathy for others was a more normative circumstance than usual (Cialdini & Trost, 1998), and therefore failing to worry about others within this context may seem contraindicated. Our previous work with this sample has shown that, when individuals failed to worry about others, and especially when they worried about themselves without worrying about others, they had a greater likelihood of reporting illness symptoms (Swanson & Dougall, 2012). It is therefore important to understand factors that predicted the level of concern individuals expressed toward themselves and toward others because these concerns are predictive of health outcomes.

Current Events

Recent events have occurred which have many similarities to the combined 9/11 and Anthrax attacks. On April 15th, 2013, two bombs exploded in close succession near the finish line of the annual Boston Marathon, killing three people and wounding hundreds of others (Kotz, 2013; Pressman and Simon, 2013). In the two days afterward, letters were intercepted which were addressed to Senator Roger Wicker and President Barack Obama. As with 9/11 and the Anthrax attacks, the two events were heavily covered within the news. As with 9/11 and the Anthrax attacks, several discussions

centered on whether the two events were linked (Hennessey, 2013). Also as with 9/11 and the Anthrax attacks, media discussions involved whether there was foreign involvement, the likelihood of future events occurring, the individual likelihood of exposure, symptoms of ricin exposure and what can be done to prevent them (CNN Library, 2013; Hennessey, 2013. Reactions to these events have also been similar. Muslim communities quickly condemned the Boston Marathon but nevertheless were still plagued by threats (Poor, 2013). Individual responses again focused on citizenry and what can be done to prevent future events.

There were, however, several differences. The events of 9/11 resulted in the long, ongoing war on terror, and the Anthrax attacks resulted in a long difficult case that took FBI officials nearly seven years to officially declare a culprit. By contrast, the perpetrators of the Boston Marathon bombings were killed or arrested within three days of the event (Lindsay and Sullivan, 2013), and the person who apparently mailed the ricin letters was arrested within eleven (Ward, 2013). The events themselves did not cause the same level of damage, and news coverage of the events decreased more quickly. Based on these differences, it would seem that the events themselves would be quickly categorized as separate from 9/11 and the Anthrax attacks. Instead, many individuals hailed the increased surveillance and inspection capabilities that arose from the events in the last quarter of 2001 as the primary reason that a quick resolution occurred, and individuals found themselves discussing these events again (Condon Jr., 2013). 9/11 and the Anthrax attacks not only remain within the memories of the American people, but now serve as a reference point for comparison.

Summary and the Importance of Threat Response

Individuals in the wake of 9/11 and the Anthrax attacks experienced symptoms of chronic stress and posttraumatic stress. Even individuals who were not directly exposed

experienced significant amounts of symptoms, and the threat they perceived from the attacks may have resulted in individuals experiencing the events vicariously as traumatic. This is not surprising because acts of terrorism and mass violence typically are the type of disaster that produces the worst and most long-lasting symptoms.

A number of factors may predict greater levels of threat over time, including more media exposure about the events, leveling blame on others, and perceiving that the events were preventable. More news media viewing, for example, may predict earlier symptoms but may not be have long-term effects. Similarly, not placing blame on others and not viewing excessive amounts of news may predict lower levels of threat or reduced levels of threat over time. It is likely that these factors influence outcomes because they change perceived levels of threat over time, and perceived threat is therefore an early risk and resilience indicator for health-related outcomes. It is hoped that this project would result in a better understanding of event-related factors that predict changes in threat over time following vicarious exposure to traumas, and how perceived threat may mediate positive and negative outcomes.

The Current Study

This study was designed to determine factors that predict adjustment to, and behavioral symptoms from, vicarious exposure to a terrorist event. The Anthrax attacks were selected as a candidate for this research because studies of the Anthrax attacks are less common, even though the characteristics of the events are more representative of terrorism as it is carried out throughout the world. These models were constructed in order to identify the initial predictors of effects from a terrorist event, a cognitive mediator of effects from these predictors (threat), and adjustment outcomes in the short term and long term (including both mental health and behavior). Perceived threat was selected as a cognitive mediator of adjustment and behavioral symptoms, with the hope that it may

help future researchers to predict longer-term outcomes and determine which individuals are more likely to suffer.

Briefly, individuals vicariously exposed to 9/11 and the Anthrax attacks were asked a number of questions two to three months after the start of the Anthrax attacks, and again eight months after the start of the attacks. Outcomes were assessed at both timepoints in order to determine initial and longer-term impact of the events. In addition to demographic characteristics, participants were initially assessed for their amount of direct exposure to the events and acquaintance with individuals exposed to the events, assessed for their media exposure to the events, assessed for who they think caused the events, and assessed for their levels of threat. Outcomes included symptoms of chronic stress and posttraumatic stress, change in outlook, worries about the self or others (assessed only at the second timepoint), perceived safety in entering government, official, or office buildings, and any change in amount of time spent monitoring for illness and anthrax symptoms. Perceived stress, posttraumatic stress, change in outlook, and worries were also assessed for their impact on the behavioral outcomes (perceived safety and illness monitoring). Specific aims for this research were presented below.

Specific Aims and Hypotheses

Conceptual models for these aims are found in Figures 1-2 through 1-4. T1 and T2 in these models represent the first and second assessment in the study, respectively. First (Aim 1), the influence of perceived threat of anthrax exposure on adjustment and behavior outcomes was assessed over time. It was expected that higher levels of perceived threat would be related to more perceived stress over time, more symptoms of posttraumatic stress over time, greater increase in negative outlook and decrease in positive outlook over time, greater worry about the self, lower perceived safety, and more illness monitoring (see Figure 1-2). Subsequently, a number of individual-level factors

were identified as predictors of participants' level of threat (Aim 2). It was expected that higher levels of initial and later threat would be predicted by inaccurate blame and mistrust (or alternatively, when individuals anticipated that the perpetrator of the Anthrax attacks was a domestic terrorist), by higher levels of 9/11 and anthrax news media exposure, and by worry about anthrax exposure (see Figure 1-3).

Next, the predictors of threat identified under Aim 2 were added into the models from Aim 1 so that threat would predict adjustment outcomes (Aim 3). It was expected that these models would have a better fit to the data and that these predictors would have the same effects on outcomes that they would with perceived threat, but that threat would mediate these relationships (see Figure 1-4). Finally, the impact of mental health outcomes including perceived stress, posttraumatic stress, outlook change, and worry were assessed along with threat as predictors of the behavioral change variables (perceived safety of entering government buildings and illness monitoring; Aim 4). It was hypothesized that more perceived stress, more posttraumatic stress, more negative outlook change, less positive outlook change, more worry about the self, and less worry about others or society would predict less perceived safety and more illness monitoring (see Figure 1-5).

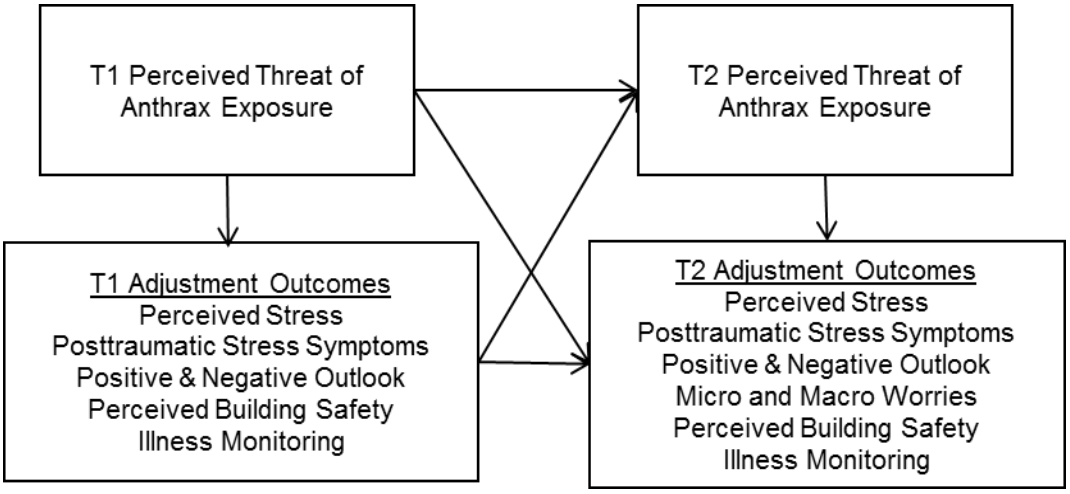

Figure 1-2 Aim 1: Perceived Threat Predicting Outcomes of Adjustment

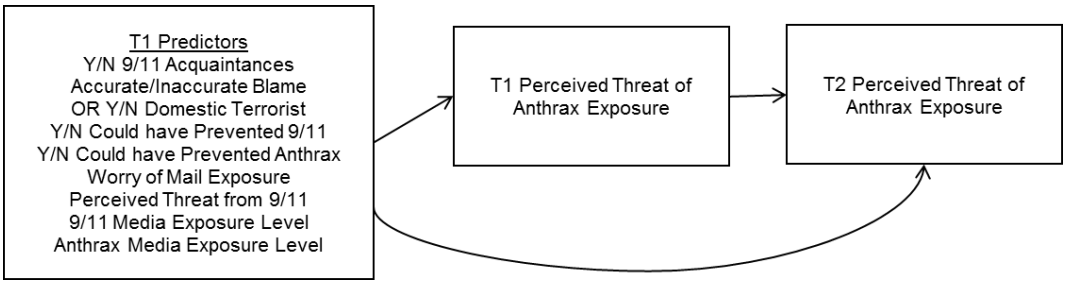

Figure 1-3 Aim 2: Predictors of Perceived Threat of Anthrax Exposure

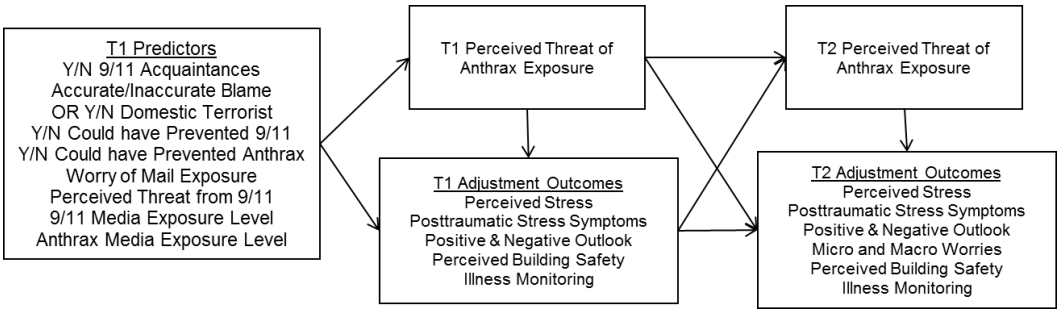

Figure 1-4 Aim 3: Perceived Threat as a Mediator of Predictors on Outcomes of Adjustment

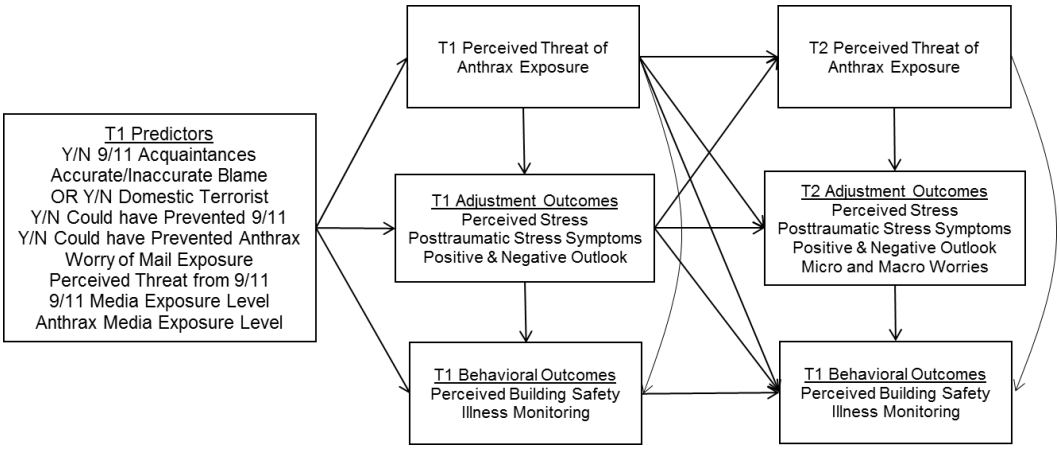

Figure 1-5 Aim 4: Perceived Threat and Adjustment Outcomes as Mediators of Predictors on Behavioral Outcomes

Chapter 2

Methods

The Original Study

This study was a secondary analysis of a longitudinal dataset with two assessments, collected two to three months and eight months after the 2001 Anthrax bioterrorism attacks. The data therefore corresponded to reactions just after 9/11 and the start of the United States engagement in the "War on Terror" in response to 9/11. It also corresponded to the initial reactions to the Anthrax attacks within the context of the earlier events. Although 9/11 has been one of the most widely-researched terrorist events, the impact of the Anthrax attacks have received less focus. This design offered an opportunity to determine the initial and longer-term reactions to the Anthrax attacks within the context of 9/11 and the war on terror.

Individuals included within the study were in a city within the Mid-Atlantic US (Pittsburgh, PA), more than an hour in driving distance away from the sites of direct exposure. At the time of the first assessment, no further anthrax letters had been found for over a month, but concerns that further letters would be found was continuing. By the second assessment, no further letters had been received and media coverage of all events had decreased in frequency.

This study has resulted in one published manuscript (Dougall, Hayward, & Baum, 2005) and two conference poster presentations (Dougall, Hayward, Roberts, & Baum, 2004; Swanson & Dougall, 2012).

Procedures

Briefly, a stratified random sample of 5,000 individuals within Allegheny County, PA (where Pittsburgh is located) was drawn from a professionally-managed list of over 400,000 addresses. Zip codes were specifically chosen to maximize sample diversity,

and the 5,000 addresses were randomly selected within those zip codes. These 5,000 households were mailed a packet marked with the University of Pittsburgh seal which contained an introduction letter instructing households to have only one head of the household read through and complete both copies of the informed consent, then complete the questionnaire packet and return it along with one of the consent forms using the postage pre-paid return envelope. The experimenters stopped recruitment at a lower than typical return rate for mailings (25%, i.e. *n* = 1,250 would be typical, but 8%, i.e. *n* = 400 were received; Freedman, Pisani, and Pervez, 1998) because a lower return rate was expected given the ongoing concerns of anthrax bioterrorism mailings, and because there was a desire to obtain data within the a reasonable timeframe to obtain the initial reactions to Anthrax attacks (i.e. three months or less after the beginning of the attacks). Approximately six months afterward (i.e. eight months after the Anthrax attacks), the second questionnaire packet was sent out to the individuals who had returned the first packet. Of these, 300 packets (75%) were returned.

Participants

Demographic characteristics of the participants closely matched those of the community within Allegheny County. Table 2-1 summarizes the demographic characteristics of participants at each timepoint. Participants were majority White, having at least some college education, married, and over 40 (see Table 2-1).

Table 2-1 Participant Demographic Characteristics

	Timepoint 1		*Timepoint 2*	
	n	*%*	*n*	*%*
Gender				
Female	214	53.5	162	54
Male	186	46.5	138	46
missing/skipped	0	0	0	0
Race				
Native American	9	2.3	2	0.7
Black or African American	14	3.5	8	2.7
White	368	92	284	94.7
Hispanic	3	0.8	2	0.7
Other	5	1.4	4	1.3
missing/skipped	1	0.3	0	0
Education Level				
Some High School	7	1.8	4	1.3
High School Graduate	60	15	42	14
Some College	103	25.8	75	25
College Degree	107	26.8	83	27.7
Some Graduate	30	7.5	23	7.7
Graduate Degree	93	23	73	24.3
missing/skipped	0	0	0	0
Marital Status				
Not Married / Not Living with Partner	142	35.5	101	33.7
Married / Living with Partner	257	64.3	199	66.3
missing/skipped	1	0.3	0	0
Age				
Mean / SD	48.76	15.67	49.95	16.1
Range	19	91	19	91
Median	48		50	

All questionnaires were voluntary and participants were not compensated. This protocol was initially approved through the Institutional Review Board (IRB) at the University of Pittsburgh and is currently approved through the IRB at the University of Texas at Arlington.

Measures

Table 2-2 summarizes the questionnaires within this study that were used for analyses. In general, the predictors were assessed at the first timepoint, while anthrax threat and most of the outcomes were assessed at both timepoints

Table 2-2 List of Questionnaires Used Within the Analyses

	Assessment	
Questionnaire	*1 (2-4 mo.'s after)*	*2 (8 mo.'s after)*
Demographic and Personal Characteristics (gender, age, marital status, and education level)	X	X
News media exposure and threat level to 9/11.	X	
Beliefs of who was responsible for Anthrax attacks (Domestic terrorist? International terrorist? Other?); beliefs that something could have been done for 9/11 and for the Anthrax attacks	X	
Whether or not acquainted with 9/11 victim	X	
News media exposure to anthrax, and worry about mail exposure.	X	
Threat level of Anthrax Attacks	X	X
Cohen's Perceived Stress Scale (Cohen, Kamarck, & Marmelstein, 1983; Cohen & Williamson, 1988)	X	X
Impact of Event Scale - Revised (IES-R Horowitz, Wilner, & Alvarez, 1979; Weiss & Marmar, 1997)	X	X
Positive and Negative Changes in Outlook (Change in Outlook Questionnaire; Joseph, Williams, & Yule, 1993)	X	X
Micro and Macro Worries Scale (Boehnke, Schwartz, Stromberg, & Sagiv, 1998)		X
Perceived Safety in Entering Government, Official, and Office Buildings	X	X
Change in Amount of Illness Monitoring	X	X

Demographic characteristics were drawn from the first assessment, or the second if demographic data were not initially provided by the participant. Demographic characteristics of interest included participant gender, age, education level, and marital status (coded for this study as whether or not the individual is currently living with their partner). These variables were previously used in publications from this dataset (Dougall, Hayward, & Baum, 2005). All four of these demographic characteristics are often used within the literature on traumas and disasters because women, those of lower education, and those single or not yet living with a partner often report greater symptomatology (Norris et al., 2002). Considering the specifics of these events, it was more likely that younger individuals (e.g. Houston, 2009; Swanson, In Preparation; Wadsworth et al., 2004) rather than older individuals (e.g. Norris et al., 2002) would report worse symptoms.

Perceived threat due to the Anthrax attacks was measured at both assessments. Participants were asked in both assessments to indicate, on a 1 (Not at all threatened) to 7 (Extremely threatened) scale in terms of how threatened they felt by the possibility of anthrax exposure. Responses from both assessments were treated as continuous scales for analyses.

A number of items were assessed as predictors of anthrax threat. First, blame was assessed by an item asking participants to indicate who they feel was responsible for the anthrax exposures. Participants could select from any of the following categories: Middle-Eastern terrorists, terrorists in the United States who are NOT associated with the Middle-Eastern terrorists, Children or teenagers who are playing pranks, and Adults who are playing pranks. Multiple selections were possible. Participant responses were dichotomized between those who only selected terrorists in the United States and all others. Those who selected only US terrorists were therefore coded as Accurate blame

while those who selected others were coded as Inaccurate. Because it was also possible that the black sheep effect would occur, analyses which used this predictor were also run while instead simply using whether or not individuals identified a domestic terrorist as the likely perpetrator.

Second, participants were asked to indicate at the initial assessment whether or not they believed something could have been done to prevent the 9/11 attacks as well as to prevent the Anthrax attacks. A response of “Yes” in these items was used to indicate of lack of trust in the capacity of government or authority figures to be able to prevent such acts of terrorism. Participants who responded with yes were compared with those who responded no.

Overall level of worry about exposure to anthrax through the mail was also assessed as a predictor of anthrax threat. In the first assessment, participants indicated their level of worry about being exposed to anthrax along a 1 (Not at all worried) to 7 (Extremely worried) scale. Responses were made for both worry about exposure at home and worry about exposure at work. A sum score was calculated for these two items to indicate the level of worry about exposure of anthrax through the mail.

Participants were also assessed for level of perceived threat from 9/11. At the first assessment, participants responded to one item on perceived threat to 9/11 by indicating along a 1 (Not at all threatened) to 7 (Extremely threatened) scale. Responses were taken as a continuous measure of 9/11 threat.

Finally, degree of news media exposure to the events was assessed as part of this study. News coverage amount had been measured at the first assessment for both 9/11 and the Anthrax attacks. Two questions for each event were assessed along a 1 (None) to 6 (More than 6 hours) scale. The first question asked participants to indicate the amount of news media exposure they had either on the first day of the event (9/11) or

when they first heard about it (Anthrax attacks). The second question asked participants to indicate the amount of news coverage they viewed, heard, or read in the week following 9/11, or in the past week (Anthrax attacks). A sum score was calculated for each event to obtain continuous measures of 9/11 and anthrax news media exposure.

Six adjustment outcomes were assessed as part of this study. First, the amount of perceived stress was measured using the 6-item version of the Perceived Stress Scale (Cohen, Kamarck, & Marmelstein, 1983; Cohen & Williamson, 1988). Participants responded to how much they thought that they experienced the statements within the past week along a 1 (Never) to 7 (Very Often) scale, such as "how often did you feel nervous and 'stressed'?" Positive-valence questions were reverse-coded and a total sum Perceived Stress score was calculated (Cronbach's α's = 0.66-0.76).

Next, symptoms of posttraumatic stress associated with the Anthrax attacks were measured with the 22-item Revised Impact of Event Scale (Horowitz, Wilner, and Alvarez, 1979; Weiss and Marmar, 1997). Participants responded along a 0 (not at all) to 4 (extremely) scale to how much they have experienced each question. Options were given such as "I had trouble staying asleep." Participants were instructed to provide their responses in regard to the anthrax exposures. A total scale score was calculated using the mean of all items for both assessments (Cronbach's α's = 0.93-0.995).

Third, positive and negative changes in outlook as a result of the Anthrax attacks were measured. The Change in Outlook Questionnaire (Joseph, Williams, & Yule, 1993) is a 26-item measure that assesses positive and negative changes in outlook on life in response to a specific event. Items are coded along a 1-6 scale from "Strongly Disagree" to "Strongly Agree". The specific event provided was "since the September 11, 2001 Tragedy and the Anthrax exposures". Sum scores were calculated at each assessment

for both positive changes in outlook (Cronbach's α's = 0.91 in both assessments) and negative changes in outlook (Cronbach's α's = 0.86 - 0.89).

Micro- and macro-worries were also assessed as an outcome. The 33-item Micro and Macro Worries Scale (Boehnke et al., 1998) assesses how worried, if at all, an individual is about circumstances associated with the self (Micro-) and circumstances associated with others and society (Macro-). The items, such as how worried they are about getting cancer or many people in the U.S. living in poverty, are responded to along a 1 (Not at all) to 5 (Extremely) scale. Micro- and macro- worries were only assessed at the second assessment. In the original scale, two items were used interchangeably as item #20: worry about the incidence of terrorist attacks in our country, and worry about politically motivated violence in our country. These items were both included for a total of 34 items, and were scored within the macro-worry subscale. Mean scores were calculated among the items representing micro-worry (Cronbach's α = 0.87) and macro-worry (Cronbach's α = 0.91).

Finally, two behavioral outcomes were measured at both timepoints. The first was a group of three items meant to identify individual perceptions of safety entering official buildings in response to the Anthrax attacks. Participants responded to how safe they feel in entering a) a post office or mail facility, b) other government buildings, and c) buildings that house media corporations along a 1 (not at all safe) to 7 (completely safe) scale. Responses to all three items were similar at both timepoints, so a mean score of the items was computed. The second was a set of five items that asked participants to respond to the extent that they have become more watchful of illness symptoms. The five prompts were yourself, your spouse or partner, your children, your friends or close relatives, and your coworkers. Participants responded along a 1 (not at all) to 7 (extremely) scale and could respond that the item does not apply (e.g. if they do not have

children or do not work). “Does not apply” responses were coded as zero, and a sum score was calculated to indicate the total extent that an individual increased their time spent monitoring illness symptoms.

Specific Aims

Aim 1: Determine the Influence of Anthrax Threat on Outcomes of Adjustment

Anthrax related threat at each assessment was used as a continuous predictor of adjustment outcomes. Adjustment outcomes were used from both assessments and included total symptoms of perceived stress, total symptoms of posttraumatic stress, levels of change in positive outlook, levels of change in negative outlook, perceived building safety, and illness monitoring. In addition, levels of micro worries and macro worries were used from the second assessment. Analyses used the repeated measure of threat as a fixed factor predicting these adjustment outcomes, then as a random factor with assessment for improvement in model fit. The interaction between time and threat was then assessed in the same fashion. It was expected that higher levels of perceived anthrax threat would predict higher perceived stress, higher posttraumatic stress, more negative outlook, and less positive outlook across time. It was expected that higher levels of threat would predict more micro worry and less macro worry, but not across time.

Aim 2: Determine Predictors of Anthrax Threat

Predictors of anthrax threat included several dichotomous variables including whether a participant was at least acquainted with a victim of 9/11, whether an individual correctly identified a domestic terrorist as the perpetrator or whether the individual identified a domestic terrorist as at least one possible, and whether the participant believed that more could have been done to prevent 9/11 and the Anthrax attacks. In addition, continuous predictors of anthrax threat were used, including level of worry about the potential for exposure to anthrax in the mail, the level of threat participants felt about

9/11, and the amount of 9/11 and anthrax news media exposure. It was expected that having inaccurate beliefs about who is to blame, having the idea that something could have been done to prevent 9/11 and to prevent the Anthrax attacks, having higher reports of perceived threat from 9/11, having more worry about anthrax mail exposure , and having more exposure to 9/11 and anthrax media would predict higher levels of perceived anthrax threat, and more threat across time.

Levels of worrying about the potential for anthrax exposure through the mail, initial 9/11 and anthrax media exposure, and perceived threat due to 9/11 were entered as continuous predictors. The variables which indicated who participants believe perpetrated the Anthrax attacks were recoded to indicate whether (1) or not (0) participants made the correct determination about who is to blame (that a U.S. domestic terrorist was to blame), and also whether (1) or not (0) participants identified a domestic terrorist. The variables indicating whether or not participants believed something more could have been done to prevent 9/11 and the Anthrax attacks, as well as the variable indicating whether or not participants knew a 9/11 victim were all dummy coded as 0 (no) versus 1 (yes) in the same way. Following the baseline assessments of perceived threat and time predicting perceived threat of anthrax exposure, these predictors were entered into the model.

Aim 3: Determine Predictors of Outcomes of Adjustment Through Anthrax Threat

Subsequent models were tested in which the predictors of perceived threat identified under Aim 2 were added to the models in Aim 1 to examine improvement in model fit. It was expected that having inaccurate blame or believing that a domestic terrorist was the perpetrator, holding the belief that something could have been done to prevent 9/11 and Anthrax attacks, having more worry about mail exposure, perceiving more threat from 9/11, and consuming more 9/11 and Anthrax attacks news media would

will predict higher levels of perceived stress and posttraumatic stress symptoms, lower positive outlook and higher negative outlook, higher micro worries, lower macro worries, lower perceived safety, and more illness monitoring. Furthermore it was expected that, with the exception of micro and macro worries, individuals with these predictors would report more of these symptoms over time. Higher levels of perceived threat were also predicted to have the same detrimental effect on outcomes, and in addition were expected to mediate relationships between the predictors and the outcomes.

Aim 4: Determine Predictors of Safety Behaviors Through Anthrax Threat and Adjustment

The fourth aim expanded on the third to also predict the behavioral outcomes from the mental health outcomes of adjustment. Not only was it expected that the predictors and anthrax threat would be related to behavioral outcomes, but it was also expected that higher levels of perceived stress, higher levels of posttraumatic stress, less positive outlook change and more negative outlook change would all predict lower perceived safety and more illness monitoring across time. Higher levels of micro worry and lower levels of macro worry were expected to predict lower levels of perceived safety and more illness monitoring, but not across time. Furthermore, it was expected that these mental health outcomes would serve as mediators between the predictors and behaviors. Following computation of the models within the third aim, another set of models were computed with the behavioral variables as outcomes and time, the predictors, threat, the interaction between threat and time, and finally the mental health outcomes and their interaction with time as predictors. Models which included micro and macro worry were not expected to predict change across time because micro and macro worry were only assessed at the second timepoint. Model fit was assessed at each step.

Chapter 3

Results

Data Screening Results and Data Analytic Procedure

Prior to conducting analyses of the specific aims, the distributions, descriptive statistics, and inter-correlations of all variables were examined for assumptions of normality and multicollinearity. Prior to conducting the linear mixed models, predictors which were measured at both assessments were centered at the grand mean across assessments, continuous predictors measured at only the first timepoint were centered at their mean, dichotomous predictors were recoded as 0 versus 1, and the variable representing change across time was coded with the first assessment as 0 and the second assessment as 1. Table 3-1 presents frequencies and descriptive statistics for each of the variables used within the analyses.

Table 3-1 Questionnaire Descriptive Statistics

		Timepoint 1		*Timepoint 2*	
		n	*%*	*n*	*%*
Y/N Acquainted with any 9/11 Victims					
	No	274	91.3		
	Yes	25	8.3		
	missing/skipped	1	0.3		
Y/N Could have prevented 9/11					
	No	108	36		
	Yes	188	62.7		
	missing/skipped	4	1.3		
Y/N Could have prevented Anthrax					
	No	212	70.7		
	Yes	84	28		
	missing/skipped	4	1.3		
Accurate/Inaccurate Blame					
	Inaccurate	144	48		
	Accurate	156	52		
	missing/skipped	0	0		

Table 3-1 – *Continued*

Y/N Domestic Terrorist			
	No	65	21.7
	Yes	228	76
	missing/skipped	7	2.3

		Timepoint 1		*Timepoint 2*	
Anthrax Mail Exposure Worry					
	Mean / SD	2.05	0.58		
	Range L / H	1.41	3.74		
	Median / *missing*	2	47		
9/11 Perceived Threat					
	Mean / SD	3.84	1.8		
	Range L / H	1	7		
	Median / *missing*	4	5		
9/11 Media Use					
	Mean / SD	9.01	1.97		
	Range L / H	4	12		
	Median / *missing*	9	6		
Anthrax Media Use					
	Mean / SD	4.86	1.59		
	Range L / H	2	12		
	Median / *missing*	5	4		
Anthrax Threat					
	Mean / SD	2.93	1.54	2.67	1.47
	Range L / H	1	7	1	7
	Median / *missing*	3	4	2	1
Perceived Stress					
	Mean / SD	19.51	5.86	20.74	6.66
	Range L / H	6	37	7	38
	Median / *missing*	19	6	20	5
Posttraumatic Stress					
	Mean / SD	0.37	0.49	0.25	0.46
	Range L / H	0	3.15	0	3.36
	Median / *missing*	0.18	1	0.05	5
Positive Outlook Change					
	Mean / SD	40.91	12.03	39.24	11.75

Table 3-1 -- *Continued*

	Range L / H	11	66	11	64
	Median / *missing*	42	17	41	14
Negative Outlook Change					
	Mean / SD	25.04	9.73	27.45	11.58
	Range L / H	15	70	15	82
	Median / *missing*	22	15	24	16
Micro Worry					
	Mean / SD			1.18	0.7
	Range L / H			0	3.31
	Median / *missing*			1.06	0
Macro Worry					
	Mean / SD			1.81	0.76
	Range L / H			0	3.75
	Median / *missing*			1.76	0
Perceived Building Safety					
	Mean / SD	6.11	1.09	6.1	1.03
	Range L / H	1.67	7	1	7
	Median / *missing*	6.33	0	6.33	3
Illness Monitoring					
	Mean / SD	20.09	10.82	7.72	5.76
	Range L / H	2	42	1	28
	Median / *missing*	20	1	5	5

The data were screened and transformations were conducted where appropriate in order to utilize data that approximate normal distributions. The predictor on the amount of worry of anthrax exposure was positively skewed and a square root transformation of this variable was conducted. Perceived anthrax threat, posttraumatic stress, and illness monitoring were also positively skewed, and therefore these grand mean centered variables were square root transformed. Finally, the variable indicating perceived safety of entering government buildings was negatively skewed and a square transformation was conducted to correct for this skew. The new variables were closer to a normal

distribution. All bivariate correlations between variables were below 0.6, indicating no issues with multicollinearity.

Linear mixed modeling was used to test the aims. This method of analysis was chosen because participants provided two repeated measurements but not all participants completed both assessments, i.e. the data were partially incomplete. Linear mixed modeling methods allowed for robust estimates while accounting for such missing data (rather than, for example, excluding the participant).

Following the recommendations by Hox (2002), analyses proceeded in a stepwise approach by first computing full maximum likelihood models that contained only the model intercept as predictors of the outcomes. For all analyses except those for the first aim, time was then entered as a fixed factor and Log likelihood comparisons were made with the intercept-only model in order to determine if there was a significant improvement in model fit. Next, the covariates were entered as fixed factors and Log likelihood comparisons were made with the previous step. Covariates entered were gender (0 = female and 1 = male), whether participants reported being married or currently living with a partner (1) versus not living with a partner (0), age in years, and education level (used as a continuous variable).

For the first aim, threat was then entered as a fixed factor for each outcome and assessed for improvement in model fit and changes in the parameter estimates, followed by time as a fixed factor, then the interaction between threat and time as a fixed factor. For the second aim, the initial predictors were simultaneously entered in the step after the covariates as fixed factors predicting threat. Specifically, whether (1) or not (0) participants were acquainted with any 9/11 victims was entered along with whether (1) or not (0) participants believed anything could have been done to prevent 9/11 and prevent the Anthrax attacks, whether (1) or not (0) participants accurately identified the

perpetrator of the Anthrax attacks as solely a domestic terrorist or alternatively whether or not participants identified a domestic terrorist, the amount of worry about exposure to anthrax through the mail, the amount of threat perceived from 9/11, the amount of exposure to 9/11 media, and the amount of exposure to anthrax media, all as fixed factors. For the third and fourth aims, this step was followed by entering threat as a fixed factor, followed by the interaction between threat and time for each outcome. For the fourth aim, the outcomes of perceived stress, posttraumatic stress, positive and negative outlook change, micro worries, and macro worries were then added to the models with perceived safety of entering government and office buildings and change in illness monitoring as outcomes. Finally, the interactions between these outcomes and time were also added as fixed factors and assessed for improvement in model fit. These tests were re-run for the models in Aim 4 without time as a factor when Micro and Macro Worries were included as predictors, because these measures were only assessed only at the second timepoint. Interpretation of parameter estimates from categorical variables were with the higher number as the reference point because that is the default mechanism within SPSS (ex. a negative correlation meant that the category assigned a 1 was higher than the category assigned a 0). Post-hoc probing of significant interactions were conducted by centering at 1 SD above and 1 SD below the grand mean of the predictor (akin to probing interactions in multiple regression), and assessment for significant indirect effects (mediation) were done using the Sobel test.

In order to ensure that the sample did not change at each step, analyses were conducted only on cases that included all required data that could not be estimated from the linear mixed models (the predictors measured at a single timepoint, and the covariates). Initial analyses also subsequently assessed models with time, threat, and the outcomes as random factors with both unstructured and compound symmetry covariance

structures (added in the same order as with the fixed factors). These analyses failed to achieve convergence while including time as a predictor, and therefore analyses of only the fixed effects models were presented. Some predictors (whether or not they knew somebody from 9/11, whether or not they felt that something could have been done to prevent 9/11 and anthrax, and whether or not they accurately identified a domestic terrorist) and all outcome by time interactions predicting safety behaviors and illness monitoring were not significant. Due to the relatively small number of participants and in order to increase power and avoid misspecification, these were removed from the final models. However, results from the full models with all predictors and interactions included were provided within tables A.1 through A.4 in Appendix A. These models also did not include time for micro and macro worry and instead only assessed T2 outcomes. Alternatives models were also conducted which were identical to these full models but included time. Result patterns of these alternative models did not differ from the final models.

Influence of Anthrax Threat on Outcomes of Adjustment

Results for the analyses for the first aim were presented in Table 3-2. Results were presented for perceived stress first, then posttraumatic stress, positive and negative outlook change, micro and macro worries, perceived safety of entering government or office buildings, then finally change in illness monitoring. Each outcome was discussed in turn.

Table 3-2 Mental Health and Safety Behavior Outcomes of Perceived Anthrax Threat across Time

Model	*Predictor*	*b*	*SE*	*t*
Perceived Stress (*df* = 677)				
Intercept Only	-2 Log Likelihood = 4396.03			
	Intercept	-0.05	0.24	-0.22
Covariates	-2 Log Likelihood = 4336.36***			
	Intercept	1.26	1.15	1.1
	Gender	2.43	0.48	5.02***
	Marital Status	-1.39	0.50	-2.79*
	Age	-0.06	0.02	-4.24***
	Education Level	0.25	0.16	1.54
Threat	-2 Log Likelihood = 4288.04***			
	Intercept	1.14	1.11	1.02
	Gender	2.08	0.47	4.43***
	Marital Status	-1.57	0.48	-3.26***
	Age	-0.06	0.01	-4.14***
	Education Level	0.30	0.16	1.89
	Threat	3.56	0.50	7.08***
Threat + Time	-2 Log Likelihood = 4281.17**			
	Intercept	1.93	1.15	1.68
	Gender	2.04	0.47	4.36***
	Marital Status	-1.54	0.48	-3.22***
	Age	-0.06	0.01	-4.27***
	Education Level	0.29	0.16	1.84
	Threat	3.64	0.50	7.27***
	Time	-1.17	0.44	-2.63*
Threat X Time	-2 Log Likelihood = 4279.59			
	Intercept	1.93	1.15	1.68
	Gender	2.05	0.47	4.38***
	Marital Status	-1.54	0.48	-3.22***
	Age	-0.06	0.01	-4.32***
	Education Level	0.30	0.16	1.93
	Threat	4.37	0.77	5.71***
	Time	-1.18	0.44	-2.65*
	ThreatXTime	-1.27	1.01	-1.26
Posttraumatic Stress (*df* = 684)				
Intercept Only	-2 Log Likelihood = 704.07			
	Intercept	0.00	0.02	-0.19
Covariates	-2 Log Likelihood = 675.94***			
	Intercept	0.16	0.08	2.15*
	Gender	0.03	0.03	0.81
	Marital Status	0.10	0.03	3.03***

Table 3-2 – *Continued*

	Age	0.00	0.00	-1.25
	Education Level	-0.04	0.01	-3.6***
Threat	-2 Log Likelihood = 477.76***			
	Intercept	0.15	0.07	2.24*
	Gender	-0.01	0.03	-0.5
	Marital Status	0.07	0.03	2.58*
	Age	0.00	0.00	-0.85
	Education Level	-0.03	0.01	-3.57***
	Threat	0.45	0.03	15.16***
Threat + Time	-2 Log Likelihood = 455.9***			
	Intercept	0.07	0.07	0.98
	Gender	-0.01	0.03	-0.39
	Marital Status	0.07	0.03	2.54*
	Age	0.00	0.00	-0.69
	Education Level	-0.03	0.01	-3.55***
	Threat	0.44	0.03	15.02***
	Time	0.12	0.03	4.71***
Threat X Time	-2 Log Likelihood = 455.78			
	Intercept	0.07	0.07	0.99
	Gender	-0.01	0.03	-0.39
	Marital Status	0.07	0.03	2.53*
	Age	0.00	0.00	-0.68
	Education Level	-0.03	0.01	-3.56***
	Threat	0.43	0.05	9.4***
	Time	0.12	0.03	4.72***
	ThreatXTime	0.02	0.06	0.35
Positive Outlook Change (*df* = 651)				
Intercept Only	-2 Log Likelihood = 5071.14			
	Intercept	-0.10	0.47	-0.22
Covariates	-2 Log Likelihood = 4991.04***			
	Intercept	-7.22	2.22	-3.25***
	Gender	6.12	0.93	6.59***
	Marital Status	2.07	0.95	2.17*
	Age	0.14	0.03	4.92***
	Education Level	-0.96	0.31	-3.04***
Threat	-2 Log Likelihood = 4975.04***			
	Intercept	-7.30	2.19	-3.33***
	Gender	5.71	0.92	6.19***
	Marital Status	1.91	0.94	2.03*
	Age	0.15	0.03	5.09***
	Education Level	-0.91	0.31	-2.94***
	Threat	3.99	0.99	4.02***
Threat + Time	-2 Log Likelihood = 4971.66			

Table 3-2 – *Continued*

	Intercept	-8.38	2.27	-3.7***
	Gender	5.77	0.92	6.26***
	Marital Status	1.87	0.94	1.98
	Age	0.15	0.03	5.17***
	Education Level	-0.90	0.31	-2.88***
	Threat	3.87	0.99	3.91***
	Time	1.61	0.87	1.84
Threat X Time	-2 Log Likelihood = 4971.65			
	Intercept	-8.38	2.27	-3.7***
	Gender	5.77	0.92	6.26***
	Marital Status	1.87	0.94	1.98
	Age	0.15	0.03	5.16***
	Education Level	-0.90	0.31	-2.88***
	Threat	3.81	1.51	2.52*
	Time	1.61	0.87	1.84
	ThreatXTime	0.10	1.99	0.05
Negative Outlook Change (*df* = 654)				
Intercept Only	-2 Log Likelihood = 4962.98			
	Intercept	0.05	0.42	0.12
Covariates	-2 Log Likelihood = 4943.13***			
	Intercept	2.21	2.10	1.05
	Gender	0.78	0.88	0.89
	Marital Status	2.44	0.90	2.71*
	Age	0.00	0.03	0.04
	Education Level	-0.87	0.30	-2.93***
Threat	-2 Log Likelihood = 4899.57***			
	Intercept	2.03	2.03	1
	Gender	0.23	0.85	0.27
	Marital Status	2.18	0.87	2.5*
	Age	0.01	0.03	0.25
	Education Level	-0.80	0.29	-2.78*
	Threat	6.12	0.91	6.71***
Threat + Time	-2 Log Likelihood = 4888.03***			
	Intercept	3.79	2.08	1.82
	Gender	0.19	0.84	0.23
	Marital Status	2.27	0.86	2.63*
	Age	0.00	0.03	0.14
	Education Level	-0.82	0.29	-2.85***
	Threat	6.35	0.91	7***
	Time	-2.75	0.80	-3.41***
Threat X Time	-2 Log Likelihood = 4887.64			
	Intercept	3.78	2.08	1.82
	Gender	0.19	0.84	0.22

Table 3-2 – *Continued*

	Marital Status	2.29	0.86	2.64*
	Age	0.00	0.03	0.12
	Education Level	-0.80	0.29	-2.81*
	Threat	7.02	1.41	4.99***
	Time	-2.76	0.80	-3.43***
	ThreatXTime	-1.14	1.83	-0.62
Micro Worries (*df* = 593)				
Intercept Only	-2 Log Likelihood = 1251.53			
	Intercept	0.00	0.03	0.03
Covariates	-2 Log Likelihood = 1196.81***			
	Intercept	0.42	0.14	3.07***
	Gender	0.12	0.06	2
	Marital Status	0.20	0.06	3.36***
	Age	-0.01	0.00	-5.06***
	Education Level	-0.03	0.02	-1.35
Threat	-2 Log Likelihood = 1143.12***			
	Intercept	0.39	0.13	2.96***
	Gender	0.08	0.06	1.46
	Marital Status	0.18	0.06	3.07***
	Age	-0.01	0.00	-4.91***
	Education Level	-0.02	0.02	-1.08
	Threat	0.44	0.06	7.5***
Threat + Time	-2 Log Likelihood = 1142.83			
	Intercept	0.40	0.13	3.01***
	Gender	0.08	0.06	1.46
	Marital Status	0.18	0.06	3.07***
	Age	-0.01	0.00	-4.91***
	Education Level	-0.02	0.02	-1.07
	Threat	0.45	0.06	7.52***
	Time	-0.03	0.05	-0.54
Threat X Time	-2 Log Likelihood = 1141.22			
	Intercept	0.41	0.13	3.03***
	Gender	0.08	0.06	1.46
	Marital Status	0.18	0.06	3.1***
	Age	-0.01	0.00	-4.99***
	Education Level	-0.02	0.02	-0.97
	Threat	0.52	0.08	6.18***
	Time	-0.03	0.05	-0.53
	ThreatXTime	-0.15	0.12	-1.27
Macro Worries (*df* = 593)				
Intercept Only	-2 Log Likelihood = 1361.98			
	Intercept	0.00	0.03	-0.15
Covariates	-2 Log Likelihood = 1337.52***			

Table 3-2 – *Continued*

	Intercept	-0.52	0.15	-3.38***
	Gender	0.20	0.07	3.11***
	Marital Status	0.15	0.07	2.15*
	Age	0.01	0.00	3.39***
	Education Level	0.01	0.02	0.27
Threat	-2 Log Likelihood = 1297.11***			
	Intercept	-0.56	0.15	-3.71***
	Gender	0.17	0.06	2.67*
	Marital Status	0.12	0.07	1.85
	Age	0.01	0.00	3.84***
	Education Level	0.01	0.02	0.57
	Threat	0.44	0.07	6.47***
Threat + Time	-2 Log Likelihood = 1296.86			
	Intercept	-0.54	0.15	-3.54***
	Gender	0.17	0.06	2.67*
	Marital Status	0.12	0.07	1.85
	Age	0.01	0.00	3.84***
	Education Level	0.01	0.02	0.57
	Threat	0.44	0.07	6.49***
	Time	-0.03	0.06	-0.5
Threat X Time	-2 Log Likelihood = 1295.51			
	Intercept	-0.54	0.15	-3.53***
	Gender	0.17	0.06	2.67*
	Marital Status	0.12	0.07	1.87
	Age	0.01	0.00	3.75***
	Education Level	0.01	0.02	0.66
	Threat	0.52	0.10	5.38***
	Time	-0.03	0.06	-0.48
	ThreatXTime	-0.16	0.13	-1.16
Perceived Safety of Building Entry (*df* = 687)				
Intercept Only	-2 Log Likelihood = 5332.03			
	Intercept	-0.03	0.45	-0.06
Covariates	-2 Log Likelihood = 5292.88***			
	Intercept	-5.29	2.19	-2.41*
	Gender	-3.64	0.92	-3.94***
	Marital Status	-0.53	0.94	-0.56
	Age	0.08	0.03	2.78*
	Education Level	0.88	0.31	2.83***
Threat	-2 Log Likelihood = 5182.5***			
	Intercept	-4.87	2.02	-2.4*
	Gender	-2.76	0.85	-3.23***
	Marital Status	0.07	0.87	0.08
	Age	0.07	0.03	2.58*

Table 3-2 – *Continued*

	Education Level	0.75	0.29	2.6*
	Threat	-10.02	0.92	-10.94***
Threat + Time	-2 Log Likelihood = 5181.62			
	Intercept	-5.39	2.10	-2.57*
	Gender	-2.74	0.85	-3.21***
	Marital Status	0.06	0.87	0.07
	Age	0.07	0.03	2.62*
	Education Level	0.75	0.29	2.62*
	Threat	-10.08	0.92	-10.99***
	Time	0.77	0.81	0.94
Threat X Time	-2 Log Likelihood = 5181.6			
	Intercept	-5.39	2.10	-2.57*
	Gender	-2.74	0.85	-3.21***
	Marital Status	0.06	0.87	0.06
	Age	0.07	0.03	2.62*
	Education Level	0.75	0.29	2.6*
	Threat	-10.21	1.42	-7.17***
	Time	0.77	0.81	0.94
	ThreatXTime	0.23	1.85	0.12
Change in Illness Monitoring (*df* = 684)				
Intercept Only	-2 Log Likelihood = 2396.55			
	Intercept	-0.01	0.05	-0.22
Covariates	-2 Log Likelihood = 2370.75***			
	Intercept	0.16	0.26	0.59
	Gender	-0.09	0.11	-0.77
	Marital Status	0.54	0.11	4.8***
	Age	0.00	0.00	-0.82
	Education Level	-0.04	0.04	-1.16
Threat	-2 Log Likelihood = 2315.5***			
	Intercept	0.13	0.25	0.53
	Gender	-0.17	0.11	-1.55
	Marital Status	0.50	0.11	4.55***
	Age	0.00	0.00	-0.59
	Education Level	-0.03	0.04	-0.94
	Threat	0.86	0.11	7.59***
Threat + Time	-2 Log Likelihood = 2019.8***			
	Intercept	-0.95	0.21	-4.48***
	Gender	-0.11	0.09	-1.28
	Marital Status	0.47	0.09	5.4***
	Age	0.00	0.00	-0.03
	Education Level	-0.02	0.03	-0.63
	Threat	0.74	0.09	8.06***
	Time	1.58	0.08	19.23***

Table 3-2 – *Continued*

Threat X Time	-2 Log Likelihood = 2007.79***			
	Intercept	-0.95	0.21	-4.53***
	Gender	-0.11	0.09	-1.27
	Marital Status	0.48	0.09	5.5***
	Age	0.00	0.00	-0.16
	Education Level	-0.01	0.03	-0.38
	Threat	1.11	0.14	7.92***
	Time	1.57	0.08	19.34***
	ThreatXTime	-0.64	0.18	-3.48***

*p < 0.05; **p < 0.01; ***p < 0.001
Note: b weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. For all outcomes except micro and macro worry, the intercept-only model estimates 2 parameters, the covariates only model estimates 6 parameters, the model including threat estimates 7 parameters, the model including threat and time estimates 8 parameters, and the model which also includes the interaction estimates 9 parameters.

Perceived Stress

Adding the covariates in to the base intercept-only model produced a statistically significant improvement in model fit (see Table 3-2). It was hypothesized that being female, single, of younger age, and of lower education level would predict higher reports of perceived stress. Analysis of the mixed model parameter estimates provided partial support for these hypotheses. Being female or of a younger age did significantly predict higher reports of perceived stress, but contrary to what was expected, individuals who were married or living with a partner reported higher levels of perceived stress than those who were not, and there was no effect based on level of education (see Table 3-2).

Threat was then entered into the model as a fixed factor, followed by time and the interaction between threat and time. It was expected that higher levels of threat would predict higher reports of perceived stress and that higher levels of perceived threat would be related to more perceived stress across time. These hypotheses were partially

supported. Higher levels of perceived threat did predict higher levels of perceived stress and this model produced a statistically significant improvement in model fit. In addition, level of perceived stress also increased across time (significant improvement in model fit). However, the increase in perceived stress across time was not dependent on level of perceived anthrax threat (see Table 3-2). Gender, marital status, and age remained significant throughout all models.

Posttraumatic Stress

Adding the covariates in to the base model again produced a statistically significant improvement in model fit (see Table 3-2). It was hypothesized that being female, single, of younger age, and of lower education level would predict higher reports of posttraumatic stress. Analysis of the mixed model parameter estimates provided partial support for these hypotheses. While lower levels of education and those who were single or not living with a partner did predict higher posttraumatic stress, gender and age did not significantly predict posttraumatic stress (see Table 3-2).

Threat was then entered into the model as a fixed factor, followed by time and the interaction between threat and time. Hypotheses were similar to those for perceived stress. Again, both threat and time produced a statistically significant improvement in model fit and both variables were significant. As expected, higher levels of perceived threat did predict higher levels of posttraumatic stress. However, unlike what was expected, levels of posttraumatic stress decreased across time, and the increase in reports of posttraumatic stress did not depend on the level of anthrax threat (see Table 3.2.1). Marital status and education level remained significant throughout all models.

Positive and Negative Change in Outlook

Adding the covariates in to the model once again produced a statistically significant improvement in model fit (see Table 3-2). It was hypothesized that being male,

married or living with a partner, older age, and of higher education level would predict more change in outlook toward positive. These hypotheses were mostly unsupported. Analysis of the parameter estimates indicated that being of older age did predict more positive outlook change. However unlike what was expected, women, those that were single, and participants with lower levels of education reported more positive outlook change (see Table 3-2).

Threat was then entered into the model as a fixed factor, followed by time and the interaction between threat and time. Hypotheses were that more threat would predict a decrease in positive outlook across time (since terrorism shatters worldviews). Unlike what was expected more threat predicted an increase in positive outlook across time, and this addition produced a significant improvement in model fit. In addition, there were no differences across time and no differences based on the level of perceived anthrax threat (see Table 3-2). All covariates except marital status remained a significant predictor throughout models, and even then, the t-tests for the parameter estimate of marital status did not produce a large decrease on any model.

There was more support for the hypotheses for negative outlook change. It was expected that women, those who were single or not currently living with a partner, of younger age, and lower education level would all report more negative outlook change. While both gender and age were not related, as expected, those who were single and those with a lower education level both reported more negative outlook change (see Table 3-2). The addition of threat to this model produced a statistically significant increase in model fit, and as expected higher levels of anthrax threat produced a higher amount of negative outlook change and the amount of negative outlook change did increase across time (both additions that produced a significant improvement in model

fit). Interestingly, negative outlook was increased by perceived anthrax threat regardless of time (i.e. there was no interaction; see Table 3-2).

Micro and Macro Worries

Because micro and macro worries were only assessed at the second timepoint, there were no changes expected based on time. It was expected that men, those who were single, those who were younger, and those with lower level of education would report more worries about themselves, while the opposite would be true for macro worries. Adding these covariates into the model predicting micro worries resulted in a statistically significant improvement in model fit from the base model, and as expected, those who were single and those of younger age did report worrying more about themselves. However unlike what was expected, gender and education level were not related (see Table 3-2). Adding anthrax threat to the model did not change these relationships, but did produce a significant improvement in model fit and as expected, higher levels of threat did predict a significantly higher amount of micro worry (see Table 3-2). Models which added time and the interaction between threat and time were not significant, as expected.

These analyses were repeated with macro worries as an outcome, and partial support was again found for the covariates hypotheses. As expected, women and older individuals reported more worry about others. However unlike what was expected, those who were single reported more macro worry and education level was not significant. Adding anthrax threat in to the model produced a statistically significant improvement in model fit, and interestingly, higher levels of threat predicted more worry about others. While marital status did become not significant in this model, the t-test value did not have a large decrease in size, making mediation unlikely. Finally as expected, adding time and

the interaction between threat and time did not produce a significant improvement in model fit and neither of the variables were significant (see Table 3-2).

Perceived Safety of Entering Government and Official Buildings

In order to determine if threat predicted change in perceptions related to behavior, the impact of anthrax threat on individuals' perceived safety in entering buildings was assessed. Like before, the intercept alone did not significantly predict perceived safety. Regarding the covariates, it was expected that women and those who were single, younger, and with a lower education level would report less perceived safety. Results were mostly supportive. The addition of these covariates again produced an improvement in model fit and those who were women, younger, and with a lower education level did report lower perceived safety in entering buildings, but and marital status was not related (see Table 3-2). These three covariates remained significant in the subsequent models.

Models were then tested which added threat, then time, then the interaction between threat and time. It was expected that higher threat would predict lower perceived building safety across time. These results were partially supported. The addition of time did significantly improve model fit, and higher anthrax threat was related to lower perceived building safety (see Table 3-2). However, subsequent models did not improve fit, there was no effect of time, and the impact of time did not depend on level of anthrax threat (see Table 3-2).

Illness Monitoring

As a further analysis to determine if threat predicted change in perceptions related to behavior, the impact of anthrax threat on the change in monitoring of illness symptoms was also assessed. Like before, the intercept alone did not significantly predict illness monitoring. As with perceived safety, it was expected that women and those who

were single, younger, and with a lower education level would report more illness monitoring. These hypotheses were only partially supported. Although the addition of the covariates did produce a significant improvement in model fit and those who were single did report more illness monitoring, gender, age, and education level were all not significant. These results did not change in subsequent models (see Table 3-2).

Further models assessed the impact of anthrax threat, time, then the interaction between threat and time, and it was expected that higher levels of threat would produce more illness monitoring across time (see Table 3-2). These hypotheses were mostly supported. Adding threat to the model did produce a significant improvement in model fit, and higher levels of threat predicted more illness monitoring. Adding time to the model also produced a further increase in model fit, but later assessments predicted lower levels of illness monitoring. Finally as expected, the interaction between threat and time was also significant and produced a significant increase in model fit. To probe this interaction, the estimated marginal means for amount of illness symptom monitoring were produced for each assessment of anthrax threat while centered at levels of anthrax threat. As expected, individuals who reported high anthrax threat did not decrease as much in illness monitoring across time as those with moderate and low anthrax threat (see Figure 3-1). Post-hoc probing of the changes across time within this interaction again revealed a significant decrease in illness monitoring in all three cases, $p < 0.001$ for all three, but with this decrease happening more slowly at higher levels of threat.

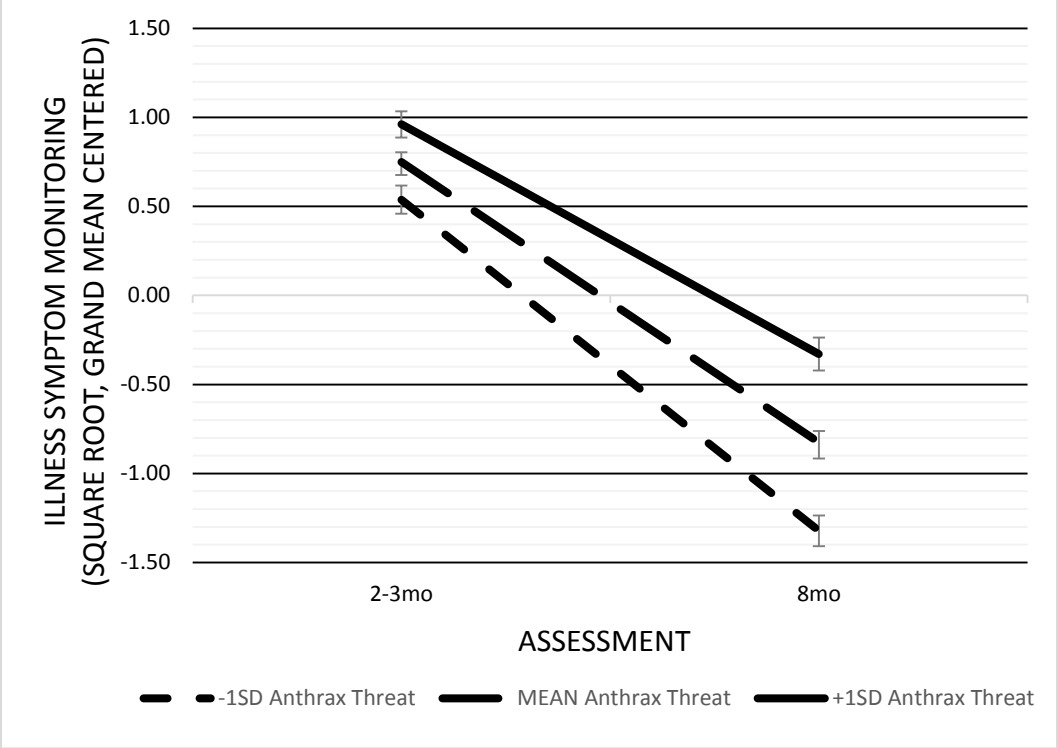

Figure 3-1 Estimated Marginal Means of Illness Symptoms across Time at Higher, Moderate, and Lower Levels of Anthrax Threat

Predictors of Perceived Anthrax Threat

Results for the analyses for the second aim were presented in Table 3-3. Results were presented predicting anthrax threat by time first, then all of the covariates, then all of the predictors.

Table 3-3 Predictors of Perceived Anthrax Threat (df = 551)

Model	*Predictor*	*b*	*SE*	*t*
Intercept Only	-2 Log Likelihood = 669.51			
	Intercept	0.00	0.02	-0.15
Time	-2 Log Likelihood = 666.07			
	Intercept	-0.04	0.03	-1.5
	Time	0.07	0.04	1.86
Covariates	-2 Log Likelihood = 655.95*			
	Intercept	-0.09	0.10	-0.93
	Time	0.07	0.04	1.84
	Gender	0.10	0.04	2.48*
	Marital Status	0.05	0.04	1.23
	Age	0.00	0.00	0.17
	Education Level	-0.01	0.01	-0.57
Predictors	-2 Log Likelihood = 399.11***			
	Intercept	-1.22	0.12	-9.94***
	Time	0.06	0.03	2.15*
	Gender	0.00	0.03	0.05
	Marital Status	0.00	0.03	0
	Age	0.00	0.00	3.69***
	Education Level	0.00	0.01	-0.07
	Y/N Domestic Terrorist	0.00	0.03	-0.11
	Worry of Mail Exposure	0.40	0.03	14.39***
	9/11 Threat	0.06	0.01	5.9***
	9/11 Media Exposure	-0.01	0.01	-0.72
	Anthrax Media Exposure	0.00	0.01	0.09

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. For each outcome, the intercept-only model estimates 2 parameters, the model including time estimates 3 parameters, the model including covariates estimates 7 parameters, and the model including all predictors estimate 12 parameters.

Briefly, it was hypothesized that perceived anthrax threat would decrease across time and that women, those who were single, those of younger age, and those with lower education would have higher reports of perceived anthrax threat. Unlike what was expected, adding time in to the model did not produce a significant increase in model fit and time did not significantly predict perceived anthrax threat (see Table 3-3). Only when

including all variables did time significantly predict perceived anthrax threat, and in this case there was a decrease in perceived threat across time. Regarding the covariates, adding them into the model did produce a significantly higher model fit, but support for the hypothesis was initially only found for gender. As expected, women had higher reports of perceived anthrax threat. After adding in the predictors, however, gender became not significant and age became significant. In this case unlike what was expected, those of older ages reported more perceived anthrax threat (see Table 3-3).

Regarding the predictors, it was expected that perceiving that the perpetrator was a domestic terrorist, being more worried about exposure to anthrax through the mail, perceiving more threat from 9/11, and having viewed more media regarding the 9/11 and Anthrax attacks would predict higher reports of perceived anthrax threat. Adding these predictors into the model did produce a statistically significant increase in model fit. As expected, being more worried about anthrax through the mail and perceiving more threat from 9/11 both predicted higher levels of anthrax threat. Unlike what was expected, neither the variable on whether or not participants believed a domestic terrorist was the perpetrator nor the variables on 9/11 and anthrax media exposure predicted perceived anthrax threat.

Predictors of Outcomes of Adjustment

Results for the analyses for the third aim were presented in Table 3-4. Like the first aim, results were presented for perceived stress first, then posttraumatic stress, positive and negative outlook change, micro and macro worries, perceived safety of entering government or office buildings, then finally change in illness monitoring. Each outcome was discussed in turn. Unlike the first aim, time was entered into the equation before the covariates rather than after, and the predictors were entered into the equation before threat. In addition because these models also included participants that provided

data for all predictors, the amount of available data was smaller. All three differences resulted in parameter estimates for time, the covariates, and perceived anthrax threat that differed somewhat from those in the first aim.

Table 3-4 Predictors of Mental Health Outcomes

		Correct/Incorrect Blame		
Model	*Predictor*	*b*	*SE*	*t*
Perceived Stress (*df* = 540)				
Intercept Only	-2 Log Likelihood = 3489.48			
	Intercept	0.22	0.26	0.82
Time	-2 Log Likelihood = 3487.42			
	Intercept	0.65	0.40	1.62
	Time	-0.76	0.53	-1.43
Covariates	-2 Log Likelihood = 3453.84***			
	Intercept	0.59	1.37	0.43
	Time	-0.75	0.52	-1.46
	Gender	2.30	0.54	4.28***
	Marital Status	-1.22	0.56	-2.2*
	Age	-0.04	0.02	-2.36*
	Education Level	0.29	0.18	1.57
Predictors	-2 Log Likelihood = 3415.88***			
	Intercept	-7.59	2.04	-3.72***
	Time	-0.76	0.50	-1.53
	Gender	1.58	0.54	2.96***
	Marital Status	-1.45	0.54	-2.67*
	Age	-0.02	0.02	-0.93
	Education Level	0.40	0.18	2.22*
	Y/N Domestic Terrorist	1.04	0.58	1.79
	Worry of Mail Exposure	1.62	0.46	3.53***
	9/11 Threat	0.49	0.16	3.02***
	9/11 Media Exposure	0.19	0.14	1.34
	Anthrax Media Exposure	-0.04	0.20	-0.19
Threat	-2 Log Likelihood = 3405.15**			
	Intercept	-4.81	2.19	-2.19*
	Time	-0.92	0.50	-1.86
	Gender	1.56	0.53	2.94***
	Marital Status	-1.44	0.54	-2.67*
	Age	-0.03	0.02	-1.41
	Education Level	0.41	0.18	2.27*
	Y/N Domestic Terrorist	1.03	0.58	1.78
	Worry of Mail Exposure	0.70	0.53	1.31
	9/11 Threat	0.36	0.17	2.14*

Table 3-4 – *Continued*

	9/11 Media Exposure	0.20	0.14	1.46
	Anthrax Media Exposure	-0.04	0.20	-0.2
	Anthrax Threat	2.31	0.70	3.29***
Threat X Time	-2 Log Likelihood = 3404.32			
	Intercept	-4.84	2.19	-2.21*
	Time	-0.93	0.50	-1.88
	Gender	1.56	0.53	2.95***
	Marital Status	-1.44	0.54	-2.68*
	Age	-0.03	0.02	-1.42
	Education Level	0.42	0.18	2.32*
	Y/N Domestic Terrorist	1.03	0.58	1.78
	Worry of Mail Exposure	0.74	0.54	1.39
	9/11 Threat	0.36	0.17	2.16*
	9/11 Media Exposure	0.20	0.14	1.43
	Anthrax Media Exposure	-0.05	0.20	-0.24
	Anthrax Threat	2.86	0.93	3.09***
	Anthrax ThreatXTime	-1.02	1.12	-0.91
Posttraumatic Stress (*df* = 549)				
Intercept Only	-2 Log Likelihood = 560.49			
	Intercept	-0.01	0.02	-0.45
Time	-2 Log Likelihood = 538.82***			
	Intercept	-0.10	0.03	-3.86***
	Time	0.16	0.03	4.7***
Covariates	-2 Log Likelihood = 512.06***			
	Intercept	0.01	0.09	0.14
	Time	0.16	0.03	4.68***
	Gender	0.05	0.03	1.38
	Marital Status	0.11	0.04	3.02***
	Age	0.00	0.00	-0.29
	Education Level	-0.04	0.01	-3.27***
Predictors	-2 Log Likelihood = 367.28***			
	Intercept	-0.79	0.12	-6.6***
	Time	0.15	0.03	5.18***
	Gender	-0.04	0.03	-1.15
	Marital Status	0.07	0.03	2.15*
	Age	0.00	0.00	2.34*
	Education Level	-0.03	0.01	-2.74*
	Y/N Domestic Terrorist	0.08	0.03	2.45*
	Worry of Mail Exposure	0.17	0.03	6.48***
	9/11 Threat	0.07	0.01	7.07***
	9/11 Media Exposure	-0.01	0.01	-1.51
	Anthrax Media Exposure	0.03	0.01	2.85***
Threat	-2 Log Likelihood = 316.65***			

Table 3-4 – *Continued*

	Intercept	-0.44	0.12	-3.57***
	Time	0.13	0.03	4.69***
	Gender	-0.04	0.03	-1.18
	Marital Status	0.07	0.03	2.24*
	Age	0.00	0.00	1.31
	Education Level	-0.03	0.01	-2.78*
	Y/N Domestic Terrorist	0.09	0.03	2.67*
	Worry of Mail Exposure	0.06	0.03	1.99
	9/11 Threat	0.05	0.01	5.35***
	9/11 Media Exposure	-0.01	0.01	-1.32
	Anthrax Media Exposure	0.03	0.01	2.96***
	Anthrax Threat	0.29	0.04	7.28***
Threat X Time	-2 Log Likelihood = 316.64			
	Intercept	-0.44	0.12	-3.56***
	Time	0.13	0.03	4.69***
	Gender	-0.04	0.03	-1.18
	Marital Status	0.07	0.03	2.24*
	Age	0.00	0.00	1.31
	Education Level	-0.03	0.01	-2.78*
	Y/N Domestic Terrorist	0.09	0.03	2.67*
	Worry of Mail Exposure	0.06	0.03	1.98
	9/11 Threat	0.05	0.01	5.34***
	9/11 Media Exposure	-0.01	0.01	-1.32
	Anthrax Media Exposure	0.03	0.01	2.96***
	Anthrax Threat	0.29	0.05	5.42***
	Anthrax ThreatXTime	0.00	0.06	0.07
Positive Outlook Change (*df* = 521)				
Intercept Only	-2 Log Likelihood = 4075.53			
	Intercept	-0.43	0.53	-0.82
Time	-2 Log Likelihood = 4072.46			
	Intercept	-1.49	0.80	-1.86
	Time	1.87	1.07	1.75
Covariates	-2 Log Likelihood = 3988.81***			
	Intercept	-8.23	2.63	-3.13***
	Time	1.86	0.99	1.88
	Gender	6.80	1.03	6.6***
	Marital Status	2.55	1.07	2.38*
	Age	0.16	0.03	4.59***
	Education Level	-1.27	0.36	-3.58***
Predictors	-2 Log Likelihood = 3970.17**			
	Intercept	-19.30	3.97	-4.86***
	Time	1.87	0.97	1.93
	Gender	5.87	1.05	5.61***

Table 3-4 – *Continued*

	Marital Status	2.07	1.06	1.95
	Age	0.19	0.04	5.3***
	Education Level	-1.11	0.35	-3.15***
	Y/N Domestic Terrorist	-1.32	1.14	-1.16
	Worry of Mail Exposure	0.55	0.91	0.61
	9/11 Threat	0.76	0.32	2.37*
	9/11 Media Exposure	0.51	0.27	1.88
	Anthrax Media Exposure	0.23	0.39	0.58
Threat	-2 Log Likelihood = 3968.55			
	Intercept	-17.15	4.31	-3.98***
	Time	1.77	0.97	1.83
	Gender	5.87	1.04	5.62***
	Marital Status	2.08	1.06	1.97
	Age	0.18	0.04	5.02***
	Education Level	-1.12	0.35	-3.16***
	Y/N Domestic Terrorist	-1.30	1.13	-1.15
	Worry of Mail Exposure	-0.12	1.05	-0.12
	9/11 Threat	0.65	0.33	1.98
	9/11 Media Exposure	0.52	0.27	1.9
	Anthrax Media Exposure	0.23	0.39	0.59
	Anthrax Threat	1.74	1.37	1.27
Threat X Time	-2 Log Likelihood = 3968.47			
	Intercept	-17.18	4.32	-3.98***
	Time	1.77	0.97	1.82
	Gender	5.86	1.04	5.62***
	Marital Status	2.08	1.06	1.97
	Age	0.18	0.04	5.02***
	Education Level	-1.11	0.35	-3.14***
	Y/N Domestic Terrorist	-1.31	1.13	-1.15
	Worry of Mail Exposure	-0.10	1.05	-0.09
	9/11 Threat	0.66	0.33	1.99
	9/11 Media Exposure	0.52	0.27	1.89
	Anthrax Media Exposure	0.22	0.39	0.57
	Anthrax Threat	2.06	1.81	1.14
	Anthrax ThreatXTime	-0.59	2.22	-0.27
Negative Outlook Change (*df* = 521)				
Intercept Only	-2 Log Likelihood = 3955.7			
	Intercept	0.02	0.47	0.05
Time	-2 Log Likelihood = 3953.65			
	Intercept	0.80	0.72	1.11
	Time	-1.36	0.95	-1.43
Covariates	-2 Log Likelihood = 3933.01***			
	Intercept	2.07	2.49	0.83

Table 3-4 – *Continued*

	Time	-1.51	0.93	-1.62
	Gender	1.13	0.97	1.16
	Marital Status	2.87	1.01	2.84***
	Age	0.02	0.03	0.6
	Education Level	-0.91	0.34	-2.7*
Predictors	-2 Log Likelihood = 3874.95***			
	Intercept	-15.17	3.63	-4.18***
	Time	-1.61	0.88	-1.82
	Gender	-0.57	0.95	-0.6
	Marital Status	2.11	0.96	2.19*
	Age	0.07	0.03	2.16*
	Education Level	-0.68	0.32	-2.1*
	Y/N Domestic Terrorist	1.52	1.04	1.46
	Worry of Mail Exposure	2.37	0.83	2.88***
	9/11 Threat	1.27	0.29	4.33***
	9/11 Media Exposure	0.13	0.25	0.51
	Anthrax Media Exposure	0.79	0.35	2.24*
Threat	-2 Log Likelihood = 3871.88			
	Intercept	-12.50	3.92	-3.19***
	Time	-1.78	0.89	-2
	Gender	-0.55	0.95	-0.58
	Marital Status	2.14	0.96	2.23*
	Age	0.06	0.03	1.87
	Education Level	-0.68	0.32	-2.1*
	Y/N Domestic Terrorist	1.54	1.04	1.48
	Worry of Mail Exposure	1.50	0.96	1.56
	9/11 Threat	1.14	0.30	3.81***
	9/11 Media Exposure	0.14	0.25	0.56
	Anthrax Media Exposure	0.79	0.35	2.25*
	Anthrax Threat	2.20	1.25	1.75
Threat X Time	-2 Log Likelihood = 3871.68			
	Intercept	-12.54	3.92	-3.2***
	Time	-1.79	0.89	-2.02*
	Gender	-0.56	0.95	-0.59
	Marital Status	2.15	0.96	2.24*
	Age	0.06	0.03	1.88
	Education Level	-0.67	0.32	-2.07*
	Y/N Domestic Terrorist	1.54	1.04	1.48
	Worry of Mail Exposure	1.54	0.97	1.59
	9/11 Threat	1.14	0.30	3.82***
	9/11 Media Exposure	0.14	0.25	0.54
	Anthrax Media Exposure	0.78	0.35	2.22*
	Anthrax Threat	2.69	1.68	1.61

Table 3-4 – *Continued*

	Anthrax ThreatXTime	-0.90	2.03	-0.44
Micro Worries (*df* = 472)				
Intercept Only	-2 Log Likelihood = 986.09			
	Intercept	0.00	0.03	-0.02
Time	-2 Log Likelihood = 986.09			
	Intercept	0.00	0.04	-0.01
	Time	0.00	0.06	0
Covariates	-2 Log Likelihood = 945.98***			
	Intercept	0.38	0.16	2.38*
	Time	0.00	0.06	0
	Gender	0.14	0.06	2.24*
	Marital Status	0.20	0.07	2.96***
	Age	-0.01	0.00	-3.61***
	Education Level	-0.04	0.02	-1.86
Predictors	-2 Log Likelihood = 874.76***			
	Intercept	-0.85	0.24	-3.62***
	Time	0.00	0.06	0
	Gender	0.03	0.06	0.5
	Marital Status	0.19	0.06	3.05***
	Age	0.00	0.00	-1.24
	Education Level	-0.02	0.02	-1.18
	Y/N Domestic Terrorist	0.15	0.07	2.18*
	Worry of Mail Exposure	0.25	0.05	4.82***
	9/11 Threat	0.10	0.02	5.05***
	9/11 Media Exposure	0.04	0.02	2.32*
	Anthrax Media Exposure	-0.06	0.02	-2.59*
Threat	-2 Log Likelihood = 867.55**			
	Intercept	-0.59	0.25	-2.34*
	Time	-0.02	0.06	-0.31
	Gender	0.03	0.06	0.55
	Marital Status	0.19	0.06	3.01***
	Age	0.00	0.00	-1.66
	Education Level	-0.02	0.02	-1.14
	Y/N Domestic Terrorist	0.15	0.07	2.18*
	Worry of Mail Exposure	0.17	0.06	2.85***
	9/11 Threat	0.08	0.02	4.19***
	9/11 Media Exposure	0.04	0.02	2.33*
	Anthrax Media Exposure	-0.06	0.02	-2.53*
	Anthrax Threat	0.21	0.08	2.7*
Threat X Time	-2 Log Likelihood = 866.71			
	Intercept	-0.59	0.25	-2.34*
	Time	-0.02	0.06	-0.31
	Gender	0.03	0.06	0.53

Table 3-4 – *Continued*

	Marital Status	0.19	0.06	3.02***
	Age	0.00	0.00	-1.7
	Education Level	-0.02	0.02	-1.09
	Y/N Domestic Terrorist	0.15	0.07	2.18*
	Worry of Mail Exposure	0.18	0.06	2.9***
	9/11 Threat	0.08	0.02	4.22***
	9/11 Media Exposure	0.04	0.02	2.32*
	Anthrax Media Exposure	-0.06	0.02	-2.57*
	Anthrax Threat	0.27	0.10	2.69*
	Anthrax ThreatXTime	-0.12	0.13	-0.92
Macro Worries (*df* = 472)				
Intercept Only	-2 Log Likelihood = 1078.86			
	Intercept	-0.03	0.03	-0.91
Time	-2 Log Likelihood = 1078.86			
	Intercept	-0.03	0.05	-0.64
	Time	0.00	0.07	0
Covariates	-2 Log Likelihood = 1048.83***			
	Intercept	-0.68	0.18	-3.78***
	Time	0.00	0.07	0
	Gender	0.27	0.07	3.71***
	Marital Status	0.16	0.07	2.18*
	Age	0.01	0.00	3.8***
	Education Level	0.01	0.02	0.22
Predictors	-2 Log Likelihood = 997.14***			
	Intercept	-1.69	0.27	-6.29***
	Time	0.00	0.06	0
	Gender	0.15	0.07	2.09*
	Marital Status	0.11	0.07	1.58
	Age	0.01	0.00	5.39***
	Education Level	0.02	0.02	0.81
	Y/N Domestic Terrorist	-0.03	0.08	-0.33
	Worry of Mail Exposure	0.09	0.06	1.41
	9/11 Threat	0.11	0.02	5.18***
	9/11 Media Exposure	-0.01	0.02	-0.39
	Anthrax Media Exposure	0.07	0.03	2.62*
Threat	-2 Log Likelihood = 986.72**			
	Intercept	-1.33	0.29	-4.64***
	Time	-0.02	0.06	-0.37
	Gender	0.15	0.07	2.16*
	Marital Status	0.11	0.07	1.51
	Age	0.01	0.00	4.87***
	Education Level	0.02	0.02	0.88
	Y/N Domestic Terrorist	-0.03	0.08	-0.36

Table 3-4 – *Continued*

	Worry of Mail Exposure	-0.03	0.07	-0.39
	9/11 Threat	0.09	0.02	4.2***
	9/11 Media Exposure	-0.01	0.02	-0.41
	Anthrax Media Exposure	0.07	0.03	2.75*
	Anthrax Threat	0.29	0.09	3.25***
Threat X Time	-2 Log Likelihood = 986.4			
	Intercept	-1.33	0.29	-4.64***
	Time	-0.02	0.06	-0.38
	Gender	0.15	0.07	2.15*
	Marital Status	0.11	0.07	1.52
	Age	0.01	0.00	4.85***
	Education Level	0.02	0.02	0.91
	Y/N Domestic Terrorist	-0.03	0.08	-0.36
	Worry of Mail Exposure	-0.02	0.07	-0.35
	9/11 Threat	0.09	0.02	4.22***
	9/11 Media Exposure	-0.01	0.02	-0.42
	Anthrax Media Exposure	0.07	0.03	2.72*
	Anthrax Threat	0.33	0.11	2.91***
	Anthrax ThreatXTime	-0.08	0.14	-0.57
Perceived Safety of Building Entry (*df* = 550)				
Intercept Only	-2 Log Likelihood = 4283.2			
	Intercept	-0.23	0.51	-0.46
Time	-2 Log Likelihood = 4283.16			
	Intercept	-0.12	0.77	-0.15
	Time	-0.20	1.02	-0.19
Covariates	-2 Log Likelihood = 4250.61***			
	Intercept	-4.51	2.63	-1.71
	Time	-0.06	1.00	-0.06
	Gender	-4.14	1.04	-3.99***
	Marital Status	-0.64	1.07	-0.6
	Age	0.06	0.03	1.76
	Education Level	0.99	0.36	2.78*
Predictors	-2 Log Likelihood = 4098.6***			
	Intercept	19.08	3.56	5.36***
	Time	0.04	0.87	0.04
	Gender	-2.25	0.93	-2.41*
	Marital Status	0.46	0.94	0.49
	Age	-0.01	0.03	-0.27
	Education Level	0.84	0.31	2.66*
	Y/N Domestic Terrorist	-0.44	1.01	-0.44
	Worry of Mail Exposure	-8.62	0.80	-10.76***
	9/11 Threat	-0.96	0.28	-3.38***
	9/11 Media Exposure	0.23	0.25	0.93

Table 3-4 – *Continued*

	Anthrax Media Exposure	-0.37	0.34	-1.08
Threat	-2 Log Likelihood = 4089.84**			
	Intercept	14.70	3.83	3.84***
	Time	0.29	0.86	0.33
	Gender	-2.26	0.92	-2.44*
	Marital Status	0.47	0.94	0.5
	Age	0.01	0.03	0.18
	Education Level	0.83	0.31	2.65*
	Y/N Domestic Terrorist	-0.49	1.01	-0.48
	Worry of Mail Exposure	-7.18	0.93	-7.7***
	9/11 Threat	-0.75	0.29	-2.56*
	9/11 Media Exposure	0.20	0.24	0.84
	Anthrax Media Exposure	-0.37	0.34	-1.07
	Anthrax Threat	-3.65	1.23	-2.97***
Threat X Time	-2 Log Likelihood = 4087.18			
	Intercept	14.82	3.82	3.88***
	Time	0.34	0.86	0.39
	Gender	-2.27	0.92	-2.46*
	Marital Status	0.46	0.93	0.5
	Age	0.01	0.03	0.21
	Education Level	0.79	0.31	2.54*
	Y/N Domestic Terrorist	-0.49	1.00	-0.49
	Worry of Mail Exposure	-7.30	0.93	-7.83***
	9/11 Threat	-0.75	0.29	-2.59*
	9/11 Media Exposure	0.21	0.24	0.88
	Anthrax Media Exposure	-0.34	0.34	-1.01
	Anthrax Threat	-5.43	1.64	-3.32***
	Anthrax ThreatXTime	3.21	1.96	1.64
Change in Illness Monitoring (*df* = 548)				
Intercept Only	-2 Log Likelihood = 1887.05			
	Intercept	-0.05	0.06	-0.91
Time	-2 Log Likelihood = 1684.47***			
	Intercept	-0.92	0.07	-12.57***
	Time	1.52	0.10	15.66***
Covariates	-2 Log Likelihood = 1651.85***			
	Intercept	-1.01	0.25	-4.05***
	Time	1.51	0.09	15.97***
	Gender	-0.01	0.10	-0.09
	Marital Status	0.57	0.10	5.59***
	Age	0.00	0.00	-0.52
	Education Level	0.00	0.03	-0.1
Predictors	-2 Log Likelihood = 1572.62***			
	Intercept	-2.84	0.36	-7.87***

Table 3-4 – *Continued*

	Time	1.51	0.09	17.11***
	Gender	-0.14	0.09	-1.48
	Marital Status	0.50	0.10	5.2***
	Age	0.00	0.00	1.06
	Education Level	0.01	0.03	0.26
	Y/N Domestic Terrorist	-0.04	0.10	-0.36
	Worry of Mail Exposure	0.63	0.08	7.76***
	9/11 Threat	0.06	0.03	2.08*
	9/11 Media Exposure	0.02	0.02	0.63
	Anthrax Media Exposure	0.00	0.03	-0.08
Threat	-2 Log Likelihood = 1563.01**			
	Intercept	-2.37	0.39	-6.1***
	Time	1.48	0.09	16.9***
	Gender	-0.14	0.09	-1.5
	Marital Status	0.50	0.09	5.24***
	Age	0.00	0.00	0.58
	Education Level	0.01	0.03	0.27
	Y/N Domestic Terrorist	-0.04	0.10	-0.35
	Worry of Mail Exposure	0.48	0.09	5.05***
	9/11 Threat	0.04	0.03	1.28
	9/11 Media Exposure	0.02	0.02	0.73
	Anthrax Media Exposure	0.00	0.03	-0.09
	Anthrax Threat	0.38	0.12	3.11***
Threat X Time	-2 Log Likelihood = 1553.87**			
	Intercept	-2.39	0.39	-6.2***
	Time	1.47	0.09	16.96***
	Gender	-0.14	0.09	-1.52
	Marital Status	0.50	0.09	5.3***
	Age	0.00	0.00	0.53
	Education Level	0.01	0.03	0.45
	Y/N Domestic Terrorist	-0.04	0.10	-0.38
	Worry of Mail Exposure	0.50	0.09	5.33***
	9/11 Threat	0.04	0.03	1.36
	9/11 Media Exposure	0.02	0.02	0.65
	Anthrax Media Exposure	-0.01	0.03	-0.22
	Anthrax Threat	0.71	0.16	4.36***
	Anthrax ThreatXTime	-0.60	0.20	-3.04***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represented unstandardized parameter estimates. Female was 0 and male 1; Marital Status was 0 for not married and 1 for married. The intercept-only model estimated 2 parameters, the time model estimated 3, the covariates model 7, the model with predictors 12, the model including threat and time 13, and the model which also includes the interaction 14 parameters.

Perceived Stress

Just as before, it was hypothesized that being female, single, of younger age, and of lower education level would predict higher reports of perceived stress. Adding time alone in to the base intercept-only model did not produce a statistically significant improvement in model fit and time was not a significant predictor of perceived stress (see Table 3-4). However, adding the covariates in to this model did produce a significant increase in model fit, and there was partial support for the hypotheses. As before, being female or of a younger age did significantly predict higher reports of perceived stress. In addition, individuals who were married or living with a partner reported higher levels of perceived stress than those who were not, and there was no effect based on level of education (see Table 3-4). Unlike what was found before, upon adding the predictors to the model age become not significant and education became significant but unlike what was hypothesized, higher levels of education predicted greater perceived stress (see Table 3-4).

When the predictors were entered into the model, there was a significant increase in model fit. It was expected that believing a domestic terrorist was the perpetrator, having more worry about exposure to anthrax through the mail, having perceived more threat from 9/11, and having more 9/11 and anthrax media exposure would predict higher levels of perceived stress. There was support for only some of these situations. While neither believing a domestic terrorist was the perpetrator nor media exposure was related to level of perceived stress, more worry of mail exposure and more threat from 9/11 did indeed predict greater amounts of perceived stress.

Following these analyses, threat was entered into the model as a fixed factor, then the interaction between threat and time. It was expected that higher levels of threat would predict higher reports of perceived stress, that higher levels of perceived threat

would be related to more perceived stress across time, and that threat would mediate the relationship between the predictors and perceived stress. Just as before, partial support was found for the threat hypotheses. Higher levels of perceived threat did predict higher levels of perceived stress and this model produced a statistically significant improvement in model fit. In addition just as before, the amount of change in perceived stress was not dependent on the level of threat and adding this interaction did not produce a significant increase in model fit (see Table 3-4). There was also partial support for the mediation hypothesis. When threat was added to the model with the predictors, the amount of worry of mail exposure became not significant, indicating possible mediation. A Sobel test of the indirect effect of worry regarding mail exposure on perceived stress through perceived anthrax threat indicated that this was the case, $Z = 3.20$, $p = 0.001$.

Posttraumatic Stress

Time, then the covariates were added to the base intercept-only model predicting posttraumatic stress. It was expected that levels of posttraumatic stress would decrease across time, and again this was shown to be the case. Adding time to the base model produced a significant increase in model fit, and levels of posttraumatic stress were lower at the second timepoint (see Table 3-4). Adding the covariates in to the base model again produced a statistically significant improvement in model fit (see Table 3-4). As before, it was hypothesized that being female, single, of younger age, and of lower education level would predict higher reports of posttraumatic stress. Again, partial support was found for these hypotheses. While lower levels of education and those who were single or not living with a partner did predict higher posttraumatic stress, gender and age did not significantly predict posttraumatic stress. However unlike before, when the predictors were added to the model age also became a significant covariate but unlike what was

expected, those of older age reported higher levels of posttraumatic stress (see Table 3-4).

As expected, entering the predictors into the model produced a significant increase in model fit. Like with perceived stress, it was expected that believing a domestic terrorist was the perpetrator, having more worry about exposure to anthrax through the mail, having perceived more threat from 9/11, and having more 9/11 and anthrax media exposure would predict higher levels of posttraumatic stress. There was only partial support for these hypotheses. While reports of more worry of mail exposure, higher perceived threat from 9/11, and more exposure to anthrax-related media all predicted higher levels of posttraumatic stress, exposure to 9/11 media did not predict levels of posttraumatic stress and interestingly, individuals that did *not* believe that the Anthrax attacks were caused by a domestic terrorist reported more posttraumatic stress than those that did.

Threat was then entered into the model as a fixed factor, followed by the interaction between threat and time. Again, hypotheses were similar to those for perceived stress, and again, threat produced an improvement in model fit. Higher levels of perceived threat predicted higher levels of posttraumatic stress, and there was no interaction between anthrax threat and time (see Table 3-4). In addition, it was hypothesized that threat would mediate the relationship between the predictors and posttraumatic stress. This hypothesis was also partially supported. While the domestic terrorist, 9/11 threat, and anthrax media exposure variables remained significant throughout these subsequent models indicating that they were independent predictors of posttraumatic stress, worry of mail exposure again became not significant. Results from a Sobel test of the indirect effect of mail exposure worry on posttraumatic stress through anthrax threat indicated that this was likely mediation, $Z = 6.49$, $p < 0.001$.

Positive and Negative Change in Outlook

These same models were conducted for both positive and negative change in outlook as outcomes. For positive outlook, it was hypothesized as before that being male, married or living with a partner, older age, and of higher education level would predict more positive outlook, and that more threat would predict a decrease in positive outlook across time. In addition, it was expected that not suspecting that the perpetrator was a domestic terrorist, having less worry about exposure to anthrax through the mail, perceiving less threat from 9/11, and having less exposure to 9/11 and anthrax media would all predict more positive outlook change. For negative outlook, it was hypothesized as before that being female, single, younger age, and lower education would predict more negative outlook change, and that more threat would predict an increase in negative outlook across time. In addition, it was expected that suspecting the perpetrator was a domestic terrorist, having more worry about exposure to anthrax through the mail, perceiving more threat from 9/11 and having more exposure to 9/11 and the Anthrax attacks would all predicts more negative outlook change, and that the effects of these predictors on positive and negative outlook change would be mediated by threat.

The first models predicted positive and negative outlook change from time and then the covariates. For both cases, adding time as a predictor did not produce a significant improvement in model fit (see Table 3-4). Time was not a significant predictor of either outcome, and this finding remained the same for all subsequent models. Adding the covariates in to the model predicting positive outlook change produced a significant improvement in model fit, but results mirrored those found in the first set of aims and these hypotheses were mostly not supported. While older individuals did report more positive outlook change, this also happened for women rather than men, single rather than married individuals, and those lower education level. Adding the predictors in to the

covariates only model resulted in marital status being no longer significant, but the t-test value did not drop to a large extent making mediation unlikely. Results for negative outlook change also mostly mirrored those found in the first set of aims. As expected, adding the covariates in increased model fit, and women as well as those with a lower education level had higher reports of negative outlook change. Adding the predictors in to the model also resulted in age being a significant predictor but unlike what was expected, those that were older reported more negative outlook change.

Adding the predictors in to these models again produced an increase in model fit. For positive outlook change, the hypotheses were not supported. Only threat from 9/11 was a significant predictor and those with higher levels of 9/11 threat reported more positive outlook change. There was more support for the hypotheses regarding negative outlook change. Specifically, while neither individuals' beliefs of whether the perpetrator was a domestic terrorist nor level of 9/11 exposure predicted negative outlook, more worry of mail exposure, more threat from 9/11 and more exposure to anthrax media did predict negative outlook change. Again, these hypotheses were only partially supported. Analysis of the parameter estimates indicated that being male, married, and of older age did predict more positive outlook change. However unlike what was expected, participants with lower levels of education reported more positive outlook change (see Table 3-4).

Threat was then entered into these models as a fixed factor, followed by the interaction between threat and time. When threat was considered after the predictors were in the model, hypotheses were not supported. Unlike what was found in the analyses for the first set of Aims, neither the addition of anthrax threat nor the addition of the interaction produced an increase in model fit, and none of these variables were significant. While the addition of anthrax threat resulted in threat from 9/11 no longer

predicting positive outlook change, age no longer predicting negative outlook change, and worry of mail exposure no longer predicting negative outlook change, in no cases did these variables decrease in t-test size to the extent that would indicate mediation (see Table 3-4).

Micro and Macro Worries

As before, there was no effect of time expected for micro and macro worries because they were assessed at only the second timepoint. Hypotheses regarding the covariates were the same as in the first aim: For worry about the self, it was expected that men, those who were single, those who were younger, and those with lower level of education would report more worries about themselves, and the opposite was expected for worry about others. There were few differences in the findings for these hypotheses from aim 1: Both improved in model fit over the intercept-only model and for micro worries, being single and younger age were still significant predictors while for macro worries, being a woman and older age were still significant predictors. While there was an additional finding that women reported higher micro worry (opposite of what was expected), other covariates were not significant. However after adding the predictors in to the model, age and gender no longer predicted micro worries and marital status no longer predicted macro worries (see Table 3-4).

The predictors were then added in to the models. It was expected that perceiving that a domestic terrorist was the perpetrator, having more worry about exposure to anthrax through the mail, perceiving more threat from 9/11, and having more 9/11 and anthrax media exposure would predict more micro worries and less macro worries. Adding the predictors into the covariates model significantly improved model fit in both cases (see Table 3-4). For micro worries there was only partial support for these hypotheses. More worry about mail exposure, more threat from 9/11, and more 9/11

media exposure did predict higher levels of micro worry, but unexpectedly, higher anthrax media exposure predicted micro worry and those who did not identify that a domestic terrorist was the perpetrator had higher micro worry. For macro worries, there was no support for the hypotheses. The only significant variables were threat from 9/11 and anthrax media exposure. Unexpectedly, more threat from 9/11 both predicted more macro worry.

After this, perceived threat from the Anthrax attacks were added to the models, and model fit was improved in both cases. As before, it was expected that more anthrax threat would predict more micro worry and less macro worry. In addition, it was expected that perceived threat would mediate the relationships between the predictors and these outcomes. As before, it was found that higher levels of anthrax threat predicted more micro worry but more threat also predicted more macro worry. After adding perceived anthrax threat to the model predicting micro worry, the t-test value for worry of mail exposure was smaller indicating partial mediation. A Sobel test for the indirect effect of mail exposure worry on micro worry through perceived anthrax threat showed that this was the case, $Z = 2.65$, $p = 0.008$. No similar reduction in t-test values occurred for macro worries. In addition, as expected time and the interactions between threat and time were not significant for both outcomes.

Perceived Safety of Entering Government and Official Buildings

Next, this aim was tested on the variables indicating safety behaviors. This was first done for individuals' change perceived safety in entering government, official, or office buildings as a response to the Anthrax attacks. First, time was entered alone and it was expected that perceived safety in entering buildings would increase across time. However, this was not the case: Time did not increase model fit over the intercept-only model and was not significant, and this remained throughout all subsequent models (see

Table 3-4). Afterward, the covariates were entered into this model. It was predicted that women, those who were single, those who were younger, and those with a lower education level would report lower perceived safety in entering buildings. Results were similar to what had been found in the first aim. While women and those with lower education reported lower perceived safety, unlike what had been found earlier age was not a significant predictor of perceived safety and remained not significant throughout all subsequent models (along with marital status; see Table 3-4).

Following the covariates, the predictors were simultaneously entered into the subsequent model, followed by threat and then the interaction between threat and time. It was expected that perceiving the perpetrator was a domestic terrorist, having more worry about exposure to anthrax through the mail, having more threat from 9/11, and having more 9/11 and anthrax media exposure would predict lower perceived safety. It was also expected that more anthrax threat would predict lower perceived safety across time and that threat would mediate the relationship between the predictors and perceived safety. The predictors model did significantly improve in fit, but there was only partial support for the hypotheses (see Table 3-4). More worry of mail exposure and more threat from 9/11 did predict lower perceived safety, but the domestic terrorist variable and neither of the media variables were significant predictors. When threat was added to the model, there was again a significant improvement in model fit, and as expected more perceived threat did predict lower perceived safety. However unlike what was expected, the interaction between threat and time did not improve model fit, and the interaction itself was not significant. When threat was added to the model, the worry of mail exposure variable remained significant but the t-test value dropped considerably, indicating that anthrax threat may partially act as a mediator between worry of mail exposure and perceived

safety. The Sobel test for this indirect effect again indicated that this was likely the case, $Z = 2.90$, $p = 0.004$.

Illness Monitoring

Finally, these safety behaviors analyses were repeated for the variable indicating increase in monitor for illness. First, time was entered alone and it was expected that illness monitoring would decrease across time. Similar to the first aim, the addition of time did improve model fit and illness monitoring did decrease across time (see Table 3-4). Afterward, the covariates were entered into this model with the expectations that that women, those who were single, those who were younger, and those with a lower education level would report more illness monitoring. Again similar to the first aim, marital status was the only significant covariate, and as predicted, those who were single reported higher change in illness monitoring. This covariate remained significant throughout all subsequent models but unlike what was expected, no other covariate was significant (see Table 3-4).

As with the perceived building safety analyses, the predictors were then simultaneously entered into the model, followed by threat and then the interaction between threat and time. Regarding the predictors, it was hypothesized that perceiving the perpetrator was a domestic terrorist, having more worry about exposure to anthrax through the mail, having more threat from 9/11, and having more 9/11 and anthrax media exposure would all predict more illness monitoring. Regarding anthrax threat and the threat by time interaction, it was hypothesized that more anthrax threat would predict higher illness monitoring across time and that threat would mediate the relationship between the predictors and illness monitoring.

Similar to the results with perceived safety, the addition of the predictors did improve model fit and both worry of worry of mail exposure and threat from 9/11 were

significant. As expected, more mail worry and more 9/11 threat predicted higher amounts of illness monitoring. However unlike what was expected, the domestic terrorist variable and neither of the media variables were significant predictors (see Table 3-4). Adding threat to the model produced a significant improvement in model fit, with more threat predicting more illness monitoring as expected. In addition (and unlike the results in the perceived safety analyses), an interaction existed between perceived anthrax threat and time. This result had been found in the first aim and was again found here. A graph of the probed interaction in Figure 3-2 shows a somewhat more pronounced interaction than what was found without inclusion of the predictors. Post-hoc probing of the estimated marginal means for changes across time within this interaction again revealed a significant decrease in illness monitoring in all three cases, $p < 0.001$ for all three, but with this decrease happening more slowly at higher levels of threat. As with the perceived safety outcome, after including threat within the model, worry about mail exposure remained significant as but the t-test value was reduced indicating the possibility that anthrax threat partially mediates the relationship between mail exposure worry and illness monitoring. In addition, it was also found that the 9/11 threat predictor became not significant when threat was entered into the model, indicating possible mediation. Sobel tests showed that, as expected, both of these were the case, $Z = 3.03$, $p = 0.002$ and $Z = 2.72$, $p = 0.007$, respectively. No further change occurred when including the threat by time interaction, indicating that mediation was from perceived anthrax threat alone regardless of time (see Table 3-4).

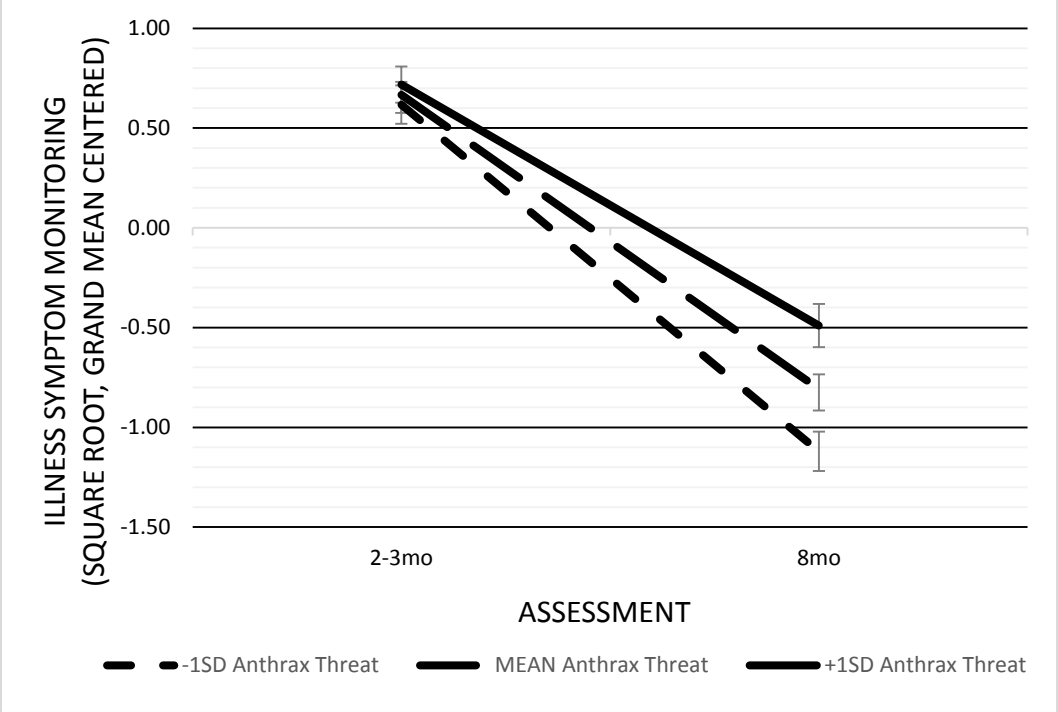

Figure 3-2 Estimated Marginal Means of Illness Symptoms across Time at Higher, Moderate, and Lower Levels of Anthrax Threat after Inclusion of the Predictors in the Model

Predictors of Safety Behaviors

Results for the analyses for the fourth aim were presented in Table 3-5. Models were calculated predicting individuals' perceived safety in entering government, official, or office buildings first, then perceived change in illness monitoring. As with the third aim, the inclusion of these outcomes as predictors changed the results and therefore, the initial models for each were discussed whenever they differed.

Table 3-5 Predictors of Safety Behaviors

		Correct/Incorrect Blame		
Model	*Predictor*	*b*	*SE*	*t*
Perceived Safety of Building Entry (*df* = 423)				
Intercept Only	-2 Log Likelihood = 3254.05			
	Intercept	0.29	0.55	0.52
Time	-2 Log Likelihood = 3253.78			
	Intercept	0.00	0.77	0
	Time	0.57	1.10	0.52
Covariates	-2 Log Likelihood = 3229.17***			
	Intercept	-4.55	2.90	-1.57
	Time	0.61	1.07	0.57
	Gender	-4.11	1.14	-3.59***
	Marital Status	0.65	1.19	0.54
	Age	0.07	0.04	1.83
	Education Level	0.83	0.40	2.09*
Predictors	-2 Log Likelihood = 3104.09***			
	Intercept	18.36	3.93	4.67***
	Time	0.34	0.92	0.37
	Gender	-2.41	1.02	-2.36*
	Marital Status	0.84	1.04	0.81
	Age	-0.02	0.04	-0.54
	Education Level	0.70	0.34	2.04*
	Y/N Domestic Terrorist	0.77	1.13	0.68
	Worry of Mail Exposure	-8.93	0.88	-10.1***
	9/11 Threat	-1.11	0.31	-3.59***
	9/11 Media Exposure	0.38	0.27	1.41
	Anthrax Media Exposure	-0.07	0.37	-0.18
Threat	-2 Log Likelihood = 3098.81*			
	Intercept	14.89	4.18	3.56***
	Time	0.65	0.93	0.7
	Gender	-2.46	1.01	-2.43*
	Marital Status	0.86	1.03	0.83
	Age	-0.01	0.04	-0.19
	Education Level	0.68	0.34	1.98
	Y/N Domestic Terrorist	0.78	1.12	0.69
	Worry of Mail Exposure	-7.82	1.00	-7.81***
	9/11 Threat	-0.91	0.32	-2.85***
	9/11 Media Exposure	0.38	0.27	1.41
	Anthrax Media Exposure	-0.10	0.36	-0.26
	Anthrax Threat	-3.01	1.31	-2.3*
Threat X Time	-2 Log Likelihood = 3095.09			
	Intercept	14.92	4.17	3.58***
	Time	0.66	0.92	0.71

Table 3-5 – *Continued*

	Gender	-2.42	1.01	-2.4*
	Marital Status	0.87	1.03	0.84
	Age	-0.01	0.04	-0.19
	Education Level	0.63	0.34	1.85
	Y/N Domestic Terrorist	0.73	1.11	0.65
	Worry of Mail Exposure	-7.93	1.00	-7.94***
	9/11 Threat	-0.93	0.32	-2.9***
	9/11 Media Exposure	0.39	0.27	1.44
	Anthrax Media Exposure	-0.04	0.36	-0.12
	Anthrax Threat	-4.98	1.65	-3.01***
	Anthrax ThreatXTime	4.14	2.14	1.93
Outcomes	-2 Log Likelihood = 3059.01***			
	Intercept	8.54	4.22	2.03*
	Time	1.19	0.92	1.29
	Gender	-2.16	1.03	-2.1*
	Marital Status	1.47	1.02	1.43
	Age	0.02	0.04	0.57
	Education Level	0.62	0.34	1.84
	Y/N Domestic Terrorist	1.35	1.09	1.24
	Worry of Mail Exposure	-7.39	0.97	-7.62***
	9/11 Threat	-0.42	0.32	-1.33
	9/11 Media Exposure	0.41	0.26	1.56
	Anthrax Media Exposure	0.14	0.37	0.37
	Anthrax Threat	-2.48	1.66	-1.5
	Anthrax ThreatXTime	3.74	2.06	1.81
	Perceived Stress	-0.03	0.09	-0.27
	Posttraumatic Stress	-5.03	1.56	-3.23***
	Positive Outlook Change	0.00	0.04	0
	Negative Outlook Change	-0.02	0.05	-0.45
	Micro Worry	-1.37	0.96	-1.42
	Macro Worry	-1.57	0.77	-2.03*
Change in Illness Monitoring (*df* = 420)				
Intercept Only	-2 Log Likelihood = 1440.99			
	Intercept	-0.17	0.07	-2.54*
Time	-2 Log Likelihood = 1276.05***			
	Intercept	-0.93	0.08	-12.2***
	Time	1.53	0.11	14.21***
Covariates	-2 Log Likelihood = 1259.47**			
	Intercept	-1.25	0.29	-4.35***
	Time	1.53	0.11	14.42***
	Gender	0.07	0.11	0.63
	Marital Status	0.45	0.12	3.82***
	Age	0.00	0.00	0.28

Table 3-5 – *Continued*

	Education Level	0.02	0.04	0.6
Predictors	-2 Log Likelihood = 1201.85***			
	Intercept	-3.10	0.42	-7.36***
	Time	1.55	0.10	15.64***
	Gender	-0.05	0.11	-0.42
	Marital Status	0.45	0.11	4.05***
	Age	0.01	0.00	2.08*
	Education Level	0.04	0.04	0.97
	Y/N Domestic Terrorist	-0.05	0.12	-0.42
	Worry of Mail Exposure	0.64	0.09	6.83***
	9/11 Threat	0.07	0.03	2.25*
	9/11 Media Exposure	0.02	0.03	0.61
	Anthrax Media Exposure	-0.04	0.04	-1.11
Threat	-2 Log Likelihood = 1193.52**			
	Intercept	-2.63	0.45	-5.89***
	Time	1.50	0.10	15.21***
	Gender	-0.04	0.11	-0.37
	Marital Status	0.45	0.11	4.06***
	Age	0.01	0.00	1.65
	Education Level	0.04	0.04	1.06
	Y/N Domestic Terrorist	-0.05	0.12	-0.43
	Worry of Mail Exposure	0.50	0.11	4.66***
	9/11 Threat	0.05	0.03	1.4
	9/11 Media Exposure	0.02	0.03	0.63
	Anthrax Media Exposure	-0.04	0.04	-1.02
	Anthrax Threat	0.40	0.14	2.9***
Threat X Time	-2 Log Likelihood = 1182.8**			
	Intercept	-2.63	0.44	-5.97***
	Time	1.50	0.10	15.38***
	Gender	-0.05	0.11	-0.44
	Marital Status	0.44	0.11	4.09***
	Age	0.01	0.00	1.64
	Education Level	0.05	0.04	1.31
	Y/N Domestic Terrorist	-0.04	0.12	-0.36
	Worry of Mail Exposure	0.52	0.11	4.89***
	9/11 Threat	0.05	0.03	1.48
	9/11 Media Exposure	0.02	0.03	0.61
	Anthrax Media Exposure	-0.05	0.04	-1.28
	Anthrax Threat	0.76	0.17	4.35***
	Anthrax ThreatXTime	-0.74	0.23	-3.3***
Outcomes	-2 Log Likelihood = 1158.9***			
	Intercept	-2.21	0.45	-4.89***
	Time	1.47	0.10	14.9***

Table 3-5 – *Continued*

Gender	-0.08	0.11	-0.74
Marital Status	0.37	0.11	3.39***
Age	0.01	0.00	1.37
Education Level	0.06	0.04	1.63
Y/N Domestic Terrorist	-0.11	0.12	-0.98
Worry of Mail Exposure	0.45	0.10	4.32***
9/11 Threat	0.01	0.03	0.34
9/11 Media Exposure	0.00	0.03	0.13
Anthrax Media Exposure	-0.04	0.04	-0.92
Anthrax Threat	0.59	0.18	3.34***
Anthrax ThreatXTime	-0.70	0.22	-3.15***
Perceived Stress	0.00	0.01	0.03
Posttraumatic Stress	0.28	0.17	1.71
Positive Outlook Change	0.00	0.00	0.92
Negative Outlook Change	0.00	0.01	0.56
Micro Worry	0.29	0.10	2.79
Macro Worry	-0.04	0.08	-0.49

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. For the first set of outcomes, the intercept-only model estimates 2 parameters, the time model estimated 3 parameters, the covariates model estimated 7 parameters, the model including predictors estimated 12 parameters, the model including threat and time estimated 13 parameters, the model which also included the threatxtime interaction estimated 14 parameters, and the model which included the mental health outcomes estimated 20 parameters.

Perceived Safety of Entering Government and Official Buildings across Time

Similar to what was found in the third aim, individuals' level of perceived safety of entering government, official, and office buildings did not change across time, women reported perceiving lower safety, and those with lower education reported lower perceived safety (see Table 3-5). Results similar to those in the third aim were also found for the predictors and for threat: Both more worry about exposure to anthrax through the mail and more perceived threat from 9/11 predicted lower perceived building safety. In addition, more threat predicted lower perceived building safety and when threat was entered into the model, the t-test value for mail exposure worry again reduced in size

indicating there was likely partial mediation. A Sobel test of this indirect relationship confirmed this was likely the case, $Z = 2.24$, $p = 0.02$. Unlike what was found in the models for the third aim, there was also a marginal interaction between threat and time, $p = 0.054$ (see Table 3-5). Figure 3-3 depicts this interaction as before, with separate lines centered at low, moderate, and high anthrax threat. Post-hoc probing of these estimated marginal means revealed that while there was no significant change across time for either low or moderate anthrax threat, $p = 0.37$ and $p = 0.49$, respectively, at one standard deviation above the mean of threat there was a marginal decrease in perceived building safety across time, $p = 0.06$.

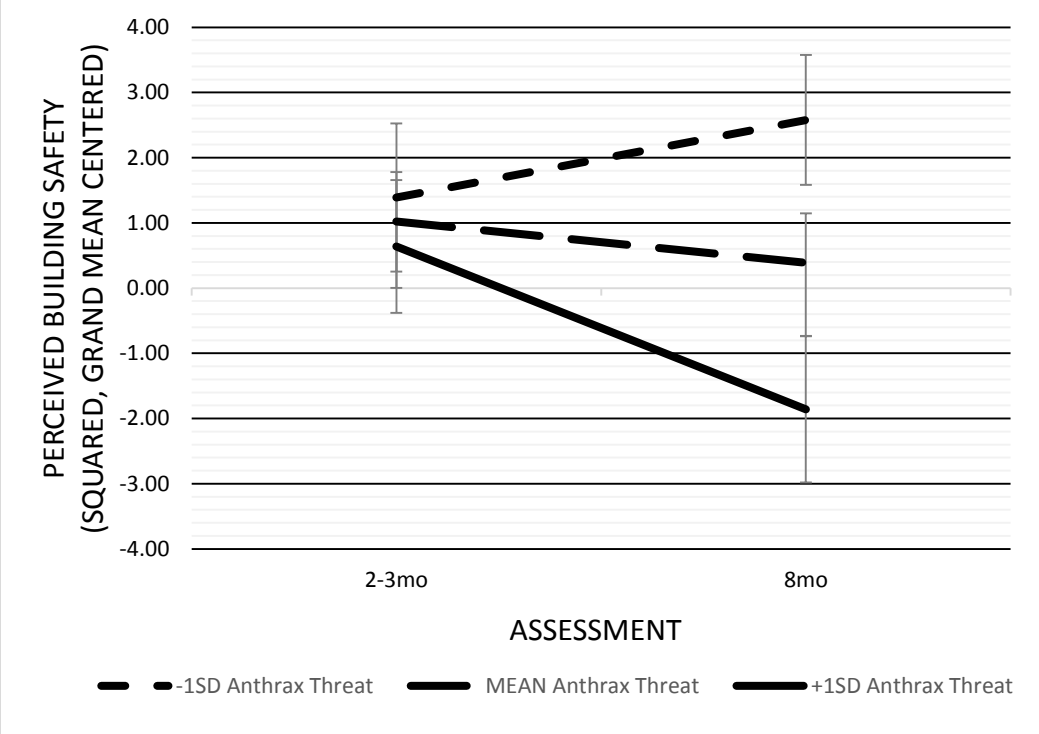

Figure 3-3 Estimated Marginal Means of Perceived Building Safety across Time at Higher, Moderate, and Lower Levels of Anthrax Threat

After these analyses, the variables perceived stress, posttraumatic stress, positive outlook change, and negative outlook change were added to this model. It was hypothesized that higher levels of perceived stress, higher levels of posttraumatic stress, lower levels of positive outlook change, and higher levels of negative outlook change would predict lower perceived building safety, and that these outcomes would function as mediators of the predictors and of anthrax threat. These results were partially supported. Adding these variables into the model did significantly improve model fit, but perceived stress, both positive and negative outlook change, and micro worry failed to predict perceived safety. In addition unexpectedly, higher macro worry predicted lower perceived building safety. However as expected, higher levels of posttraumatic stress did predict lower reports of perceived building safety. Furthermore when these outcomes were entered into the model, both perceived 9/11 threat and perceived anthrax threat were no longer a significant predictor of perceived building safety, indicating possible mediation. Sobel tests of each of these indirect effects supported the notion that experiences of posttraumatic stress mediated the impact of perceived 9/11 and anthrax threat on perceived building safety, $Z = 2.73$, $p = 0.006$ and $Z = 2.92$, $p = 0.003$, respectively. Results, however, did not support the notion that macro worry mediated the impact of perceived 9/11 and anthrax threat on perceived building safety, $Z = 1.78$, $p = 0.07$ and $Z = 1.67$, $p = 0.10$, respectively (see Table 3-5).

Illness Monitoring across Time

These analyses were repeated while instead using the amount of monitoring of illnesses across time. Similar to the third aim, amount of illness monitoring decreased across time and those who were single had more illness monitoring than those who were married or living with a partner. In addition, amount of worry of mail exposure remained a significant predictor with more worry of mail exposure predicting more illness monitoring.

Also like what was found in the analyses during the second aim, perceived 9/11 threat was significant and more 9/11 threat predicted more illness monitoring. This variable became not significant when perceived anthrax threat was entered into the model, but the t-test value was only slightly reduced in size to the point of being not significant (see Table 3-5). Adding perceived anthrax threat to the model again resulted in better model fit, more anthrax threat predicted more illness monitoring, and again the t-test value for the mail worry variable decreased in size indicating partial mediation. A Sobel test for the indirect effect of mail worry predicting illness monitoring through anthrax threat confirmed this was the case, $Z = 2.94$, $p = 0.005$. Finally as with the third aim, adding the interaction again significantly improved model fit and the interaction was in the same direction. This interaction, largely the same as previous tests, was presented in Figure 3-4. Post-hoc probing of the changes across time at different levels of threat also revealed the same significant decrease at each level, with smaller decreases at higher levels of anthrax threat, $p < 0.001$ in all cases.

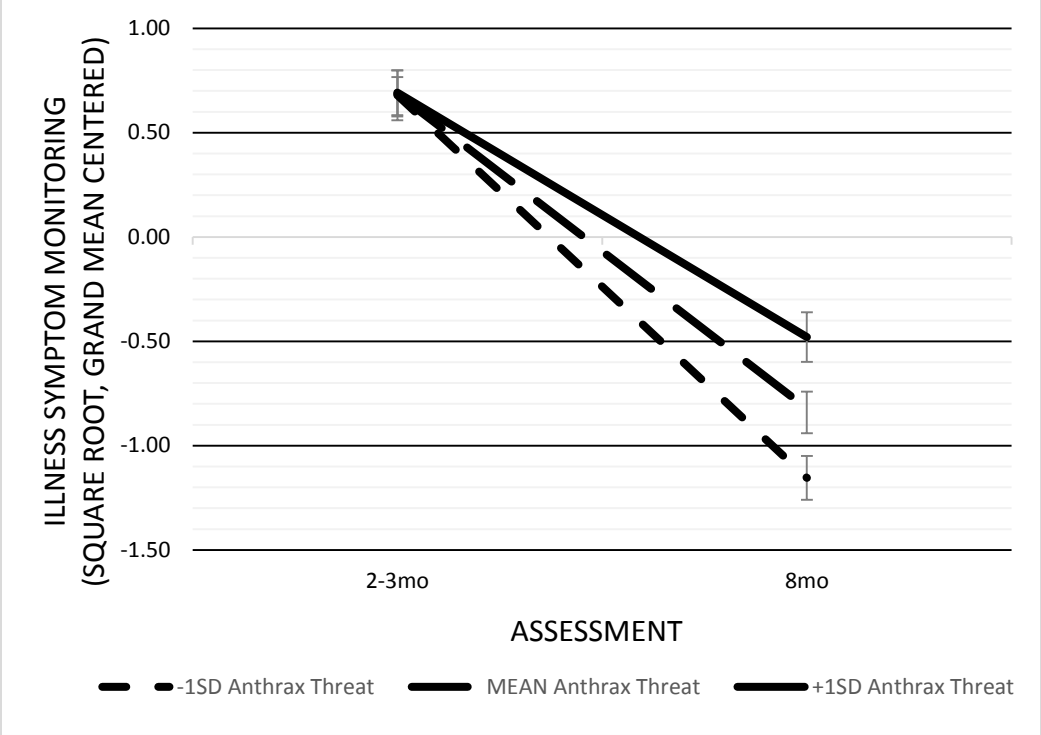

Figure 3-4 Estimated Marginal Means of Illness Symptoms across Time at Higher, Moderate, and Lower Levels of Anthrax Threat after Inclusion of the Predictors and the Outcomes in the Model

Perceived stress, posttraumatic stress, positive outlook change, negative outlook change, micro worry, and macro worry were then added as predictors. It was hypothesized that higher levels of perceived stress, higher levels of posttraumatic stress, lower levels of positive outlook change, higher levels of negative outlook change, higher levels of micro worry, and lower levels of macro worry would predict higher amounts of illness monitoring, and that these outcomes would function as mediators of the predictors and of anthrax threat. Although the addition of these variables produced a significant improvement in model fit, none of these outcomes were significant, and the hypotheses were not supported (see Table 3-5).

Summary of Results

Initial analyses were conducted to determine predictors of anthrax threat and of adjustment outcomes. Unlike what was expected, the variables indicating whether or not participants were acquainted with someone from 9/11, whether or not something could have been done to prevent 9/11 or the Anthrax attacks, and whether or not participants accurately identified the perpetrator as a domestic terrorist consistently failed to predict anthrax threat and adjustment outcomes. To retain statistical power and avoid model misspecification, the linear mixed models were reassessed without these predictors. Models were also tested with time, threat, and (for aim 4) the mental health outcomes as random factors using both unstructured and compound symmetry covariance matrices. These models consistently failed to converge. Final models for the first aim included the covariates gender, marital status, age, and education level as well as perceived anthrax threat, time, and the interaction between perceived anthrax threat and time all entered as fixed factors predicting adjustment outcomes. Final models for the second aim included time, the same covariates, as well as whether or not participants identified a domestic terrorist as one of the possible perpetrators, the amount of worry of exposure to anthrax through the mail, the amount of perceived threat from 9/11, and the amount of media exposure to 9/11 and the Anthrax attacks all as fixed factors predicting perceived anthrax threat. Final models for the third aim included time, the same covariates, the same predictors, perceived anthrax threat, and the interaction between perceived threat and time all entered as fixed factors predicting outcomes of adjustment. Models for the last aim included time, the covariates, the predictors, perceived anthrax threat, the interaction between threat and time, and the mental health adjustment outcomes all entered as fixed factors predicting behavioral adjustment outcomes. In this final set of models, the

interactions between mental health adjustment outcomes and time were all unexpectedly not significant and therefore were excluded.

Analyses were conducted first to test whether more perceived anthrax threat predicted more perceived stress, more posttraumatic stress, less positive outlook change and more negative outlook change, lower perceived safety of entering government buildings, and more illness symptom monitoring across time. Analyses were also conduced to test whether more perceived anthrax threat predicted more micro worry and less macro worry, but not across time. There was only partial support for these hypotheses. As expected, more perceived anthrax threat did predict more perceived stress, more posttraumatic stress, more negative outlook change more micro worry, less perceived building safety, and more illness monitoring. However unexpectedly, more perceived anthrax threat actually predicted more positive outlook change and more macro worries. In addition, there was only one interaction between anthrax threat and time. Amount of illness monitoring decreased across time, but not as much for individuals who had higher levels of perceived anthrax threat.

Further analyses were then conducted to determine factors that predict perceived anthrax threat. Unexpectedly, only gender and age were significant covariates, and while women reported higher anthrax threat than men, older individuals as opposed to younger individuals reported higher threat. It was expected that believing a domestic terrorist was the perpetrator, having more worry about mail exposure, having more threat from 9/11, and having more 9/11 and anthrax media exposure would all predict more perceived anthrax threat. There was partial support for the hypotheses. More worry about anthrax exposure and more perceived threat from 9/11 did predict more anthrax threat, but no other predictors were significant.

Analyses for the third set of aims were conducted to determine the impact of the predictors on adjustment outcomes across time, as well as whether or not perceived threat would function as a mediator of these relationships. Models were entered with time first, then the covariates, then the predictors, anthrax threat, and finally the interaction between anthrax threat and time. Hypotheses regarding relationships between the covariates and the outcomes generally matched or were opposite of those of anthrax threat (opposite for positive outlook change and macro worry). First, the covariates were entered into the model which included time and as expected, women reported more perceived stress, more negative outlook change, and less perceived safety. In addition, those who were single and not living with a partner reported more perceived stress, more negative outlook change, more micro worry, and more illness monitoring. Younger participants reported more perceived stress, more micro worry, and less macro worry. Those with lower education reported more posttraumatic stress and more negative outlook change. Other covariate relationships were either not significant or opposite of what was expected.

Then, the predictors were entered into the model. Whether or not a domestic terrorist was identified as the perpetrator only predicted posttraumatic stress and unexpectedly, those who said it was not a domestic terrorist had more symptoms of posttraumatic stress. Regarding the amount of worry of exposure to anthrax through the mail, the expected relationships were found for perceived stress, posttraumatic stress, negative outlook change, micro worries, perceived building safety, and amount of illness monitoring. Mail exposure worry only failed to predict positive outlook change and macro worry. Also as expected, more threat from 9/11 predicted more perceived stress, more posttraumatic stress, more negative outlook change, more micro worry, less perceived safety, and more illness symptoms. Other relationships with 9/11 threat were not

significant or opposite of what was expected. Media exposure to 9/11 did not consistently predict outcomes, but more anthrax media exposure predicted more symptoms of posttraumatic stress and more negative outlook change. When perceived anthrax threat was entered into the model, more threat significantly predicted more perceived stress, more posttraumatic stress, more micro worry, less perceived safety, and more illness monitoring. In all cases, it also mediated the relationship between mail exposure worry and these outcomes. Anthrax threat also mediated the relationship between perceived 9/11 threat and amount of illness monitoring. An interaction was again found between anthrax threat and time predicting illness symptoms, and results were the same as with the first aim.

In the last aim, mental health adjustment outcomes were also entered into the models predicting perceived building safety and illness monitoring. It was expected that the mental health outcomes would also predict these behavioral measures, and would mediate the relationships between the predictors and the outcomes. More posttraumatic stress and (unexpectedly) more macro worry predicted less perceived safety, but no other outcomes were significant for perceived safety. Posttraumatic stress was found to mediate the relationship between 9/11 and anthrax threat and perceived safety. Outcomes generally failed to predict illness monitoring.

Chapter 4

Discussion

The Anthrax attacks have not been as large a research study focus as 9/11, even though they are more representative of terrorism and, due to the involvement of toxic substances, may be more likely to produce chronic symptoms. The purpose of this secondary data analysis among individuals vicariously exposed to the Anthrax attacks was to 1) identify factors that predict adjustment after the attacks, 2) determine the influence of perceived threat on adjustment outcomes, and 3) determine if factors that predict adjustment outcomes do so because they increase perceived threat. The general hypotheses for this study were that anthrax-related threat, as well as mental and behavioral outcomes of adjustment would be predicted by reactions to the Anthrax attacks. In addition, threat was expected to serve as a mediator between reactions to the Anthrax attacks and adjustment outcomes, and mental health adjustment outcomes were expected to function as a mediator between reactions and behavioral outcomes.

In short, there was some support for all of these hypotheses. More perceived anthrax threat was predicted by more worry about exposure to anthrax through the mail as well as more perceived threat from 9/11. Despite the two items not being the same, both worry about exposure to anthrax through the mail and perceived threat from the Anthrax attacks predicted a wide variety of mental and behavioral outcomes including worse chronic and posttraumatic stress, negative outlook change, worry about the self, perceived safety, and amount of monitoring for illness symptoms. Anthrax threat mediated or partially mediated the relationships between mail exposure and these outcomes. Perceived safety increased across time while illness monitoring decreased across time, but having more anthrax threat decreased the rate of these improvements.

Higher levels of posttraumatic stress also predicted more perceived safety, and this relationship was mediated by both 9/11 and anthrax threat.

However, there were also several hypotheses that were not supported. The majority of relationships tested between the predictors and adjustment outcomes were not significant, and some predictors (blame from 9/11 and the Anthrax attacks, and whether or not participants correctly identified the perpetrator) were consistently not significant. Aside from perceived safety and illness monitoring, there were no interactions found between anthrax threat and time predicting adjustment outcomes. Furthermore, there were no other interactions between the mental health adjustment outcomes and time, and neither of these significant interactions functioned as a mediator of perceived safety or illness monitoring. Even though perceived anthrax threat did mediate relationships between mail exposure worry and adjustment outcomes, the majority of relationships with other predictors were not significant and anthrax threat therefore did not consistently function as a predictor of other outcomes. Finally, hypotheses that higher perceived threat would predict lower levels of positive adjustment (positive outlook and macro worry) were generally incorrect. More anthrax threat actually predicted more worry about others and society in the same way that it predicted worry about the self.

Significance of the Results

This secondary data analysis was conducted at a time in which concerns regarding the impact of terrorism were high. The bombings at the Boston marathon and the recent ricin attacks have re-ignited debate within the news media and in the public on whether or not we are vulnerable to terrorism. This study systematically tested the impact of reactions after vicarious exposure to such events on mental and behavioral health outcomes. Importantly, it did so using an event that was more representative of terrorism as it exists worldwide than those which are more commonly studied. In that context, a

number of important determinants of negative mental and behavioral health outcomes were found, some of which contradicted expectations based on the available literature.

First, individuals who had only indirect exposure to the events nevertheless experienced a wide variety of negative health outcomes from it. They suffered from chronic stress and symptoms of posttraumatic stress. They worried about themselves and their risk, and adopted a more negative outlook on humans and life as a whole. The impact of the events also changed perceptions that impacted behavior. Individuals perceived a greater amount of risk of exposure from entering government, office, and official buildings, and also reported that they had increased their amount of time spent monitoring for illnesses in themselves and among loved ones. Clearly even without direct exposure, the Anthrax attacks had an impact on individuals. Such widespread effects from mere vicarious exposure is rarely seen and, although it is difficult to prove, it is likely that this level of impact was in part the result of the use of anthrax as a biological weapon (Benedek & Grieger, 2009; Holloway et al., 1997). The nature of the discussion of the events within media circles bear this out. The fact that exposure to media related to anthrax was a more consistent predictor of outcomes (posttraumatic stress, negative outlook change, and worries about the self as well as others versus worries about the self) also supports this notion.

Importantly, the amount of threat that people perceived from the Anthrax attacks was found to predict a variety of these adjustment outcomes, and those relationships continued to exist across time. Furthermore, this mediated the effects of many initial reactions to the terrorism events on negative mental health outcomes, lending credence to the notion that perceived threat functions as a cognitive mediator of adjustment. The fact that those with high perceived threat did not reduce in their amount of illness

monitoring across time as those who had moderate or lower levels of perceived threat strongly supports this notion.

The Negative Impact of Perceived Threat

Perceived threat of exposure to the Anthrax attacks was a consistent and relatively strong predictor of all adjustment outcomes except change in outlook. With the exception of the outcome of worrying about others, more perceived threat predicted worse outcomes. This finding is consistent with a large body of evidence that has been published on the impact of traumatic events on broad outcomes (Norris et al., 2002; Swanson, In Progress, Dougall & Swanson, 2011). The mechanisms by which perceived threat may arise and impact outcomes are many, and this study did not specifically support one mechanism over the other. However, it is likely that perceived threat was produced, in part, from news media consumption from the event and information-seeking. Individuals who hear of extreme disastrous events, especially unique ones such as Bioterrorism, frequently show a large amount of information seeking behavior (Case, 2012). The amount of news exposure reported indicates that this sample was no different. Individuals turned to news circles to receive current event information on 9/11, the Anthrax attacks, and the war on terror. Because of the content being presented within the news, however, individuals encountered information about anthrax but not likely enough information to judge their own individual risk (Case, 2012). Rather, they learned of the insidious nature of the anthrax spores (Benedek and Grieger, 2008). Therefore, individuals received information that may have informed them of the possibility for further anthrax attacks, and, by the first assessment, the level of reported threat had not subsided. This indicated that many had not yet determined that the level of anthrax threat had hit its low point (Baum, 1987). Participant responses regarding perceived anthrax threat at the first assessment were low but not prevalent. Importantly (and likely due to

participants still awaiting more information) threat did not significantly decrease across time, indicating that individuals as much as eight months after the event still reported feeling threatened by the possible presence of anthrax. This may explain the myriad negative outcomes found among individuals who reported more perceived threat. The mechanisms by which media consumption can serve as a vehicle for threat and trauma (and support from this study for these notions) are discussed within the next section.

Media Exposure as a Vehicle of Vicarious Traumatization

A central component of the hypotheses within this study was that vicarious traumatization that was sufficient to produce negative outcomes would be produced by media exposure. As reported, it was clear that perceived anthrax threat was produced by the Anthrax attacks, and that this threat produced a wide variety of negative outcomes. While there was little evidence to show that perceived threat was produced by anthrax media exposure per se, evidence was indeed found that exposure to anthrax media predicted a number of negative outcomes. Individuals with both more 9/11 media exposure and more anthrax media exposure reported spending more time worrying about themselves. However interestingly, worrying about others was only predicted by more media exposure to the Anthrax attacks, and 9/11 media exposure failed to predict other outcomes. Instead, anthrax media exposure appeared to be more impactful to individuals. Those who reported more anthrax media exposure also had negative outlook change and experienced more symptoms of posttraumatic stress. This finding is not surprising because the content of the news media included warnings of mail exposure and instruction on how to behave going forward (Dougall, Hayward, & Baum, 2005; Dougall, Hayward, Roberts, and Baum, 2004; Norris, Kern, & Just, 2003; Schuster et al., 2001; Zelizer & Allan, 2011). In other words, individuals were prompted not just to listen but to act. While results regarding the detrimental impact of news media from the Anthrax

attacks had been found earlier (Dougall, Hayward, and Baum, 2005), this study adds to these previous findings by showing that media views of the Anthrax attacks also produced both more worry about themselves and more worry about others. The combined increase in symptoms of Posttraumatic Stress, change toward a negative outlook, and widespread worry make it likely that media exposure to the Anthrax attacks functioned as a route of traumatization.

The Tie between 9/11 and the Anthrax Attacks

The events of the last quarter of 2001 are inseparably linked. The two occurred in quick succession. The perpetrator of the Anthrax attacks portrayed the letters as having been sent from foreign terrorists. Initial media reports heavily suggested that this was so.

Worry as an Indicator of the Link between 9/11 and the Anthrax Attacks

Findings from this study also appear to signal that the two were linked from the participants' perspective. Notions of citizenry and the resilience of the nation were heavily discussed as a result of 9/11, and in this context, individuals considered it important to spend time worrying for others. These events set up a situation that was different from what is typically shown within the worry literature. Normally, worry about the self and worry about others may increase from exposure to a negative event but worry for the self uniformly predicts negative outcomes while worry for others may predict positive outcomes or be unrelated (Boehnke, Schwartz Stromberg, & Sagiv, 1998; Schwartz, Sagiv, & Boehnke, 2000). The aspects of citizenry and resilience in the wake of 9/11, however, changed the paradigm in this case. This study focused on the Anthrax attacks rather than 9/11, but nevertheless found this shift in perspective shortly after 9/11. Worry for the self and for others were *both* predicted by more 9/11 threat and by more anthrax threat. Furthermore unlike past findings (e.g. Schwartz, Sagiv, & Boehnke, 2000), worry for others also predicted lower perceived safety. The events of 9/11 may have been

responsible for a shift in perspective on where concerns should be placed, and therefore worry about others within these Anthrax attacks had negative impact on behavior.

How Bioterrorism Made the Anthrax Attacks Different

Even so, a number of findings from this study seemed to indicate that the Anthrax attacks were perceived as different from 9/11 in important ways. More threat from 9/11 predicted more anthrax threat and was related to a large number of adjustment outcomes. Specifically, more 9/11 threat predicted more perceived stress and posttraumatic stress, more negative outlook change, more micro worry, less perceived safety, and more illness monitoring, In addition, the circumstances surrounding 9/11 may have been a reason that more 9/11 threat predicted more worry about others and predicted more positive outlook change. These relationships were generally the same with perceived anthrax threat but importantly, anthrax threat did not predict outlook change. Furthermore, individuals became more negative as a result of more exposure to anthrax media, but still no similar positive outlook change occurred. Positive outlook change was either not an outcome of anthrax threat or was not used as a coping strategy for the Anthrax attacks, in stark contrast from 9/11. Given the number of symptoms shown among both those who reported higher anthrax threat and those who reported more anthrax media exposure, it is likely that the Anthrax attacks were just as impactful as 9/11. The simultaneous widespread negative response and lack of positive outlook change supports theoretical notions that when toxic substances are involved in terrorism or a technological event, the result is worse and more chronic symptoms ensue (Baum, 1987; Ursano et al., 2003). It is ironic that, despite the Anthrax attacks receiving less study than 9/11, the potential for chronic negative outcomes from the Anthrax attacks appears to be higher.

Worry of Mail Exposure

Participants within this sample indicated a relatively low level of initial concern that they would be exposed to anthrax through the mail. Nevertheless, concern about mail exposure was a powerful predictor of all of the negative outcomes measured within this study (anthrax threat, perceived stress, posttraumatic stress, negative outlook, micro worries, decreased perceived safety, illness monitoring). Perceived anthrax threat consistently mediated at least part of the relationship between mail exposure worry and outcomes, indicating that much (but not all) of the concern that individuals had regarding mail handling was related to how threatening they perceived anthrax to be. For the two behavioral adjustment outcomes, this mediation was only partial. That is, both mail exposure worry and anthrax threat predicted separate variance in these outcomes. This difference between mental health and behavioral health outcomes is interesting to ponder. Perhaps for the mental health outcomes, the component of mail exposure worry that impacted outcomes was primarily an affective component, but for behavioral health outcomes, mail exposure worry may include objective assessments of the impact of concerns for mail exposure. That is, perhaps feeling concerned about exposure but not stressed may not predict mental health outcomes but nevertheless still produce differences in perceived safety and behaviors such as illness monitoring.

Blame and Lack of Trust

Results from participants' perceptions of who was to blame for the Anthrax attacks, as well as whether or not anything could have been done to prevent 9/11 and the Anthrax attacks, were surprising. Having correct notions about who was likely the terrorist was expected to predict health outcomes, but this variable was not significant for any analysis. In short, there was no evidence to suggest that accurately placing blame made any difference as to the impact of the event. In contrast, simply believing that a domestic

terrorist was at least one possibility among others was related to posttraumatic stress. However, this relationship was opposite of what was expected and perceiving that a domestic terrorist was one possibility actually predicted lower rather than higher posttraumatic stress. These results supported neither the notion that placing accurate blame based on having correct information would be any more helpful than placing blame seemingly at random, nor the notion that individuals would have aspects of their social identity challenged and would therefore respond with increased symptomatology (Marques, Yzerbyt, & Leyens, 1988). Instead of this "black sheep" effect, it appeared possible that perceiving the perpetrator was a domestic terrorist may have instead allowed an individual to consider (and take comfort) that 9/11 and the Anthrax attacks were related only by association.

In addition, there was no support within this sample for the notion that believing something could have been done to prevent the attacks changed outcomes. This result was also surprising, since there has been both theoretical evidence (Baum, 1987) as well as some research evidence (Davidson, Baum, & Collins, 1982; Prince-Embury, 2013) that suggest holding this belief is a powerful predictor of continuing symptoms. Perhaps holding the expectation that something could have been done to prevent the attacks may have contributed to symptom responding among some individuals but may have been simply used as a method of coping for others (e.g. Jones & Nisbett, 1971). Therefore, interactions therefore may occur but in this circumstance it was not possible to test such interactions. Perhaps also, that the impact of 9/11 and the Anthrax attacks were so broad that any effects produced by the consideration that someone was to blame were overshadowed by other effects. It was also possible that, given it has been shown to be a measure of chronic stress, there had not been enough time for the impact of thinking someone was to blame to make itself known. While these findings certainly contradict

those of Baum and colleagues (e.g. Davidson, Baum, & Collins, 1982; Baum, Cohen, & Hall, 1993; Prince-Embury, 2013), there are several differences between this event and their research at TMI besides simply this being terrorism and that being an industrial accident. First, there was a full generation in timespan between this and those studies. In addition, anger regarding that event centered on the city and Power Company's handling of the disaster, whereas in this event blame was much more widespread.

Chronic Stress and Posttraumatic Stress

Participants experienced a large amount of chronic symptoms of perceived stress and posttraumatic stress as a result of the Anthrax attacks. Furthermore measures of perceived stress *in*creased rather than decreased across time. Posttraumatic stress symptoms did decrease slightly across time, but individuals still reported symptoms. This response profile has been shown before and is typical of the responses of those with concerns over toxic exposure as well as those with terrorism. Factors that predicted the amount of perceived stress and posttraumatic stress differed slightly from what had been found within past studies which included terrorism events (Norris et al., 2002). In addition to the previously discussed perceived threat, a number of demographic factors predicted posttraumatic stress and health, but the results were not always what was expected. Unlike what had been heavily reported previously (Norris et al., 2002), women were no more likely than men to report symptoms of posttraumatic stress, and there were no effects based on age. The impact of marital status differed based on the outcome, with married individuals having higher chronic stress but lower posttraumatic stress. Finally results based on age were opposite of what is typically presented within the literature. In this sample, older individuals reported more chronic perceived stress but no differences in symptoms of posttraumatic stress. This paints a picture of more complex demographic relationships than is described within large influential studies within the field (e.g. Norris

et al., 2002; Norris, Friedman, Watson, et al., 2002) and overall tends to support the findings from a newer meta-analysis focusing exclusively on toxic exposure (Swanson, In Progress). While it is possible that findings are different between the type of disastrous event and whether or not toxic substances were present, in this case it is also possible that the combined events of 9/11 and the Anthrax attacks were unique enough to produce different disparities than is commonly reported.

Positive and Negative Change in Outlook

While Janoff-Bulman and Frantz (1997) cite evidence that traumatic events such as the Anthrax attacks shatter an individual's worldview, causing him or her to adopt a more negative worldview, However, researchers have shown that the opposite can occur and have positive relationships on health (Butler et al., 2005; Linley & Joseph, 2004; Segovia et al., 2012). Unfortunately in this sample, there was no increase in positive outlook and there was a significant decrease in outlook. These results, combined with the perceived threat and posttraumatic stress that occurs, indicates that individuals' worldviews were being shattered and reconstructed in a more negative light. Overall, there is little evidence to support that individuals were "making the best of it" by the second assessment. Rather, they were suffering from chronic stress and other symptoms.

However a number of other factors were also related to positive and negative change in worldview. Women were far more likely to experience positive outlook change than men. Individuals who were single were more likely to report having experienced both positive *and* negative outlook change. Older individuals reported higher positive outlook change, and those with lower education had both greater likelihood of positive and negative outlook change.

These findings at first seem contradictory. After all, how can someone adopt both a more positive outlook and a more negative outlook? Perhaps unidentified circumstances exist that can explain these seemingly contradictory findings. For example, it may be possible that individuals who encounter stressful circumstances also experience positive outcomes at the same time as they experience the negative. That is, they may perceive growth just as they struggle from the event (Linley and Joseph, 2004). In this perspective, positive and negative changes would not always be opposite of each other because they are separate dimensions of the adjustment process and therefore can co-occur. Another possibility, however, is that individuals truly were within the Janoff-Bulman process of deconstructing and reconstruction their worldview, but that in the wake of 9/11 and the Anthrax attacks that worldview was not simply more positive or more negative but rather more specific and complex. This alternative may be an explanation for the simultaneous harassment of Muslim populations after 9/11 (Kalkan, Layman, and Uslaner, 2009; Rodriguez-Carballeira and Javaloy, 2005) and attempts to align for citizenry. In line with social identity theory, individuals may adopt a more positive outlook toward themselves and their ingroup but a more negative outlook toward the rest of the world. The notion of whether shattering of worldviews can result in reconstruction of a more specific worldviews is an area rife for scientific exploration.

Perceived Safety and Illness Monitoring

Unlike what was expected, individual perceptions of safety in entering government, office, or other official buildings was relatively high and did not change over time. Nevertheless, a number of factors including the already discussed perceived anthrax threat and worry of mail exposure predicted the amount of perceived safety. Women, younger individuals, and those with lower education were more likely to report lower perceived building safety. These results followed a resource model in which those

with the lowest amount of resources perceived less safety (Hobfoll et al., 2010). This evidence is often shown in systematic reviews such as Norris et al. (2002). By contrast, Illness symptom monitoring only had one major risk factor associated with it other than mail exposure and threat across time. Aside from these variables, it was found that those who were single or not living with a partner reported more illness monitoring than those who were married or living with a partner. While this risk factor was different than those which were found for perceived safety, it can again be explained by using a resources model in which those who have less resources (i.e. those who are not marred) are more likely to spend time monitoring illness symptoms; Hobfoll, 2010). Researchers should consider a variety of measures of the resources available to participants as predictors of behavioral changes.

Study Strengths and Limitations

This secondary data analysis had a number of strengths. First, assessment of outcomes of terrorism was longitudinal beginning shortly after the events occurred and ending at the point in which chronic symptoms could be identified. Second the data analysis was conducted at a time in which similar events had recently occurred and thus the results were of some interest to society. Third, this report made use of statistical techniques that could handle nonrandom missing data. Fourth, this secondary analysis reported on the Anthrax attacks as opposed to 9/11, the Oklahoma City bombing, or some other well-researched event. This was important because the impact of the Anthrax attacks had been relatively understudied, because the attacks involve bioterrorism affording the researcher an opportunity to determine the impact of toxic exposure, and because the nature of the attacks were more similar to terrorism as it tended to occur throughout the world.

There were also some limitations to the study. Chief among them was the fact that this was a secondary analysis. Although it was not feasible to wait for a similar act of terrorism to occur to test the aims within this project, it is likely that the study and questionnaires may have been able to be designed to more effectively and efficiently test the aims if it had been designed and conducted from the ground up. Results from this report should be replicated in future studies using a wider variety of questions that address the same aims.

Second, the use of multilevel modeling as a statistical technique was both well-suited to the event and simultaneously not ideal. While the use of this statistical technique allowed the use of 100 more participants that were missing not at random, it also complicated interpretability among readers. In addition, this technique is best used when there are a large number of measures at the lowest level (i.e. time). In this case there were only two repeated measures, and as a result modeling the random effects proved impossible. Had this study been designed with the multilevel modeling analyses in mind, it would have had more repeated measures (Kwok et al., 2008).

Finally, a major component of these aims was to show some degree of causality or pathway. Initial reactions to the event were expected to predict perceived threat, which then predicted outcomes. These analyses were accomplished using the Sobel test, but mediation and causality cannot strictly be shown using this method. The fact that these data were collected retrospectively rather than prospectively make it more difficult to show causality without a doubt. That said, given that a terrorist event such as the Anthrax attacks could not easily have been predicted, and that there are few better statistical tests that can show causality under these constraints, these analyses were perhaps a “best possible” compromise.

Conclusions and Future Directions

Briefly, a secondary data analysis was conducted on individual reports of reactions to 9/11 and the Anthrax attacks. Analyses were conducted to determine factors that predict perceived anthrax threat as well as mental and behavior adjustment to the event. It was hypothesized that initial reactions such as more worry about exposure to anthrax through the mail would predict more perceived anthrax threat, which in turn would predict more mental health outcomes of adjustment such as chronic stress and posttraumatic stress. Threat was also expected to predict worse behavioral outcomes such as increased illness monitoring. Partial support for the hypotheses was found. While higher amounts of worry of exposure to anthrax through the mail and perceived anthrax threat did predict worse outcomes and perceived anthrax threat functioned as a mediator of many of these relationships, there were also several hypotheses that were not supported. Mixed results were found on whether or not 9/11 and anthrax media exposure predicted adjustment outcomes, while little support was found for other variables including anthrax and 9/11 blame, perceptions that the events could have been prevented.

These mixed findings in some cases support and in other cases stand in opposition to some prominent articles on factors that predict the impact of traumatic experiences. This study produced ample support that vicarious exposure threatens individuals and produces negative mental and behavioral health, that terrorism produces worse outcomes than other event types, that when terrorism involves toxic exposure, it produces even worse chronic outcomes, and that media usage plays a role in producing much of this vicarious exposure. However, results were also found that were decidedly mixed as to demographic characteristics that predict these outcomes, and factors that differentiate between negative change after terrorism exposure and positive change.

These provocative findings highlight the need for future differentiation of factors based on event type and event characteristics. It is also possible that some models of the changes that occur during trauma may improve from 1) incorporation of more components that highlight the similarities and differences between events, as well as 2) goes beyond positive and negative symptoms to determine situations in which positive and negative symptoms may co-occur.

Overall, findings from this study strongly support the notion that individuals experience a variety of symptoms from mere vicarious exposure to events. Furthermore, it is clear that experiencing more threat from the event produces slower recovery from the event, and worse symptoms overall. The amount of symptomatology experienced by individuals in this study highlights the importance of considering both event-related factors (in this case, the presence of toxic biological components as part of a terrorism event), and individual factors (in this case, the influence of media and worry about exposure and the events when attempting to understand the impact of traumatic events). Researchers and practitioners should consider these factors when attempting to identify the impact of a disaster or traumatic event, as well as to aid in disaster management.

Appendix A

Full Linear Mixed Models

Table A.1 Mental Health and Safety Behavior Outcomes of Perceived Anthrax Threat across Time

Model	*Predictor*	*b*	*SE*	*t*
Perceived Stress (*df* = 677)				
Intercept Only	-2 Log Likelihood = 4396.03			
	Intercept	-0.05	0.24	-0.22
Covariates	-2 Log Likelihood = 4336.36***			
	Intercept	1.26	1.15	1.1
	Gender	2.43	0.48	5.02***
	Marital Status	-1.39	0.50	-2.79*
	Age	-0.06	0.02	-4.24***
	Education Level	0.25	0.16	1.54
Threat	-2 Log Likelihood = 4288.04***			
	Intercept	1.14	1.11	1.02
	Gender	2.08	0.47	4.43***
	Marital Status	-1.57	0.48	-3.26***
	Age	-0.06	0.01	-4.14***
	Education Level	0.30	0.16	1.89
	Threat	3.56	0.50	7.08***
Threat + Time	-2 Log Likelihood = 4281.17**			
	Intercept	1.93	1.15	1.68
	Gender	2.04	0.47	4.36***
	Marital Status	-1.54	0.48	-3.22***
	Age	-0.06	0.01	-4.27***
	Education Level	0.29	0.16	1.84
	Threat	3.64	0.50	7.27***
	Time	-1.17	0.44	-2.63*
Threat X Time	-2 Log Likelihood = 4279.59			
	Intercept	1.93	1.15	1.68
	Gender	2.05	0.47	4.38***
	Marital Status	-1.54	0.48	-3.22***
	Age	-0.06	0.01	-4.32***
	Education Level	0.30	0.16	1.93
	Threat	4.37	0.77	5.71***
	Time	-1.18	0.44	-2.65*
	ThreatXTime	-1.27	1.01	-1.26

Table A.1 – *Continued*

Posttraumatic Stress (df = 684)				
Intercept Only	-2 Log Likelihood = 704.07			
	Intercept	0.00	0.02	0
Covariates	-2 Log Likelihood = 675.94***			
	Intercept	0.16	0.08	2.15*
	Gender	0.03	0.03	0.81
	Marital Status	0.10	0.03	3.03***
	Age	0.00	0.00	-1.25
	Education Level	-0.04	0.01	-3.6***
Threat	-2 Log Likelihood = 477.76***			
	Intercept	0.15	0.07	2.24*
	Gender	-0.01	0.03	-0.5
	Marital Status	0.07	0.03	2.58*
	Age	0.00	0.00	-0.85
	Education Level	-0.03	0.01	-3.57***
	Threat	0.45	0.03	15.16***
Threat + Time	-2 Log Likelihood = 455.9***			
	Intercept	0.07	0.07	0.98
	Gender	-0.01	0.03	-0.39
	Marital Status	0.07	0.03	2.54*
	Age	0.00	0.00	-0.69
	Education Level	-0.03	0.01	-3.55***
	Threat	0.44	0.03	15.02***
	Time	0.12	0.03	4.71***
Threat X Time	-2 Log Likelihood = 455.78			
	Intercept	0.07	0.07	0.99
	Gender	-0.01	0.03	-0.39
	Marital Status	0.07	0.03	2.53*
	Age	0.00	0.00	-0.68
	Education Level	-0.03	0.01	-3.56***
	Threat	0.43	0.05	9.4***
	Time	0.12	0.03	4.72***
	ThreatXTime	0.02	0.06	0.35

Table A.1 – *Continued*

Positive Outlook Change (df = 651)				
Intercept Only	-2 Log Likelihood = 5071.14			
	Intercept	-0.10	0.47	0
Covariates	-2 Log Likelihood = 4991.04***			
	Intercept	-7.22	2.22	-3.25***
	Gender	6.12	0.93	6.59***
	Marital Status	2.07	0.95	2.17*
	Age	0.14	0.03	4.92***
	Education Level	-0.96	0.31	-3.04***
Threat	-2 Log Likelihood = 4975.04***			
	Intercept	-7.30	2.19	-3.33***
	Gender	5.71	0.92	6.19***
	Marital Status	1.91	0.94	2.03*
	Age	0.15	0.03	5.09***
	Education Level	-0.91	0.31	-2.94***
	Threat	3.99	0.99	4.02***
Threat + Time	-2 Log Likelihood = 4971.66			
	Intercept	-8.38	2.27	-3.7***
	Gender	5.77	0.92	6.26***
	Marital Status	1.87	0.94	1.98
	Age	0.15	0.03	5.17***
	Education Level	-0.90	0.31	-2.88***
	Threat	3.87	0.99	3.91***
	Time	1.61	0.87	1.84
Threat X Time	-2 Log Likelihood = 4971.65			
	Intercept	-8.38	2.27	-3.7***
	Gender	5.77	0.92	6.26***
	Marital Status	1.87	0.94	1.98
	Age	0.15	0.03	5.16***
	Education Level	-0.90	0.31	-2.88***
	Threat	3.81	1.51	2.52*
	Time	1.61	0.87	1.84
	ThreatXTime	0.10	1.99	0.05

Table A.1 – *Continued*

Negative Outlook Change (df = 654)				
Intercept Only	-2 Log Likelihood = 4962.98			
	Intercept	0.05	0.42	0
Covariates	-2 Log Likelihood = 4943.13***			
	Intercept	2.21	2.10	1.05
	Gender	0.78	0.88	0.89
	Marital Status	2.44	0.90	2.71*
	Age	0.00	0.03	0.04
	Education Level	-0.87	0.30	-2.93***
Threat	-2 Log Likelihood = 4899.57***			
	Intercept	2.03	2.03	1
	Gender	0.23	0.85	0.27
	Marital Status	2.18	0.87	2.5*
	Age	0.01	0.03	0.25
	Education Level	-0.80	0.29	-2.78*
	Threat	6.12	0.91	6.71***
Threat + Time	-2 Log Likelihood = 4888.03***			
	Intercept	3.79	2.08	1.82
	Gender	0.19	0.84	0.23
	Marital Status	2.27	0.86	2.63*
	Age	0.00	0.03	0.14
	Education Level	-0.82	0.29	-2.85***
	Threat	6.35	0.91	7***
	Time	-2.75	0.80	-3.41***
Threat X Time	-2 Log Likelihood = 4887.64			
	Intercept	3.78	2.08	1.82
	Gender	0.19	0.84	0.22
	Marital Status	2.29	0.86	2.64*
	Age	0.00	0.03	0.12
	Education Level	-0.80	0.29	-2.81*
	Threat	7.02	1.41	4.99***
	Time	-2.76	0.80	-3.43***
	ThreatXTime	-1.14	1.83	-0.62

Table A.1 – *Continued*

Micro Worries (df = 298)				
Intercept Only	-2 Log Likelihood = 628.04			
	Intercept	0.00	0.04	0
Covariates	-2 Log Likelihood = 600.43***			
	Intercept	0.45	0.19	2.29*
	Gender	0.11	0.08	1.28
	Marital Status	0.20	0.08	2.31*
	Age	-0.01	0.00	-3.71***
	Education Level	-0.03	0.03	-1
Threat	-2 Log Likelihood = 562.78***			
	Intercept	0.42	0.18	2.33*
	Gender	0.06	0.08	0.82
	Marital Status	0.18	0.08	2.22*
	Age	-0.01	0.00	-4.07***
	Education Level	-0.01	0.03	-0.28
	Threat	0.53	0.08	6.33***
Macro Worries (df = 298)				
Intercept Only	-2 Log Likelihood = 681.82			
	Intercept	-0.01	0.04	0
Covariates	-2 Log Likelihood = 670.04*			
	Intercept	-0.50	0.22	-2.31*
	Gender	0.20	0.09	2.13*
	Marital Status	0.14	0.09	1.52
	Age	0.01	0.00	2.36*
	Education Level	0.00	0.03	0.13
Threat	-2 Log Likelihood = 641.26***			
	Intercept	-0.53	0.21	-2.52*
	Gender	0.16	0.09	1.76
	Marital Status	0.12	0.09	1.38
	Age	0.01	0.00	2.37*
	Education Level	0.02	0.03	0.81
	Threat	0.53	0.10	5.5***

Table A.1 – *Continued*

Perceived Safety of Building Entry (df = 687)				
Intercept Only	-2 Log Likelihood = 5332.03			
	Intercept	-0.03	0.45	0
Covariates	-2 Log Likelihood = 5292.88***			
	Intercept	-5.29	2.19	-2.41*
	Gender	-3.64	0.92	-3.94***
	Marital Status	-0.53	0.94	-0.56
	Age	0.08	0.03	2.78*
	Education Level	0.88	0.31	2.83***
Threat	-2 Log Likelihood = 5182.5***			
	Intercept	-4.87	2.02	-2.4*
	Gender	-2.76	0.85	-3.23***
	Marital Status	0.07	0.87	0.08
	Age	0.07	0.03	2.58*
	Education Level	0.75	0.29	2.6*
	Threat	-10.02	0.92	-10.94***
Threat + Time	-2 Log Likelihood = 5181.62			
	Intercept	-5.39	2.10	-2.57*
	Gender	-2.74	0.85	-3.21***
	Marital Status	0.06	0.87	0.07
	Age	0.07	0.03	2.62*
	Education Level	0.75	0.29	2.62*
	Threat	-10.08	0.92	-10.99***
	Time	0.77	0.81	0.94
Threat X Time	-2 Log Likelihood = 5181.6			
	Intercept	-5.39	2.10	-2.57*
	Gender	-2.74	0.85	-3.21***
	Marital Status	0.06	0.87	0.06
	Age	0.07	0.03	2.62*
	Education Level	0.75	0.29	2.6*
	Threat	-10.21	1.42	-7.17***
	Time	0.77	0.81	0.94
	ThreatXTime	0.23	1.85	0.12

Table A.1 – *Continued*

Change in Illness Monitoring (df = 684)				
Intercept Only	-2 Log Likelihood = 2396.55			
	Intercept	-0.01	0.05	0
Covariates	-2 Log Likelihood = 2370.75***			
	Intercept	0.16	0.26	0.59
	Gender	-0.09	0.11	-0.77
	Marital Status	0.54	0.11	4.8***
	Age	0.00	0.00	-0.82
	Education Level	-0.04	0.04	-1.16
Threat	-2 Log Likelihood = 2315.5***			
	Intercept	0.13	0.25	0.53
	Gender	-0.17	0.11	-1.55
	Marital Status	0.50	0.11	4.55***
	Age	0.00	0.00	-0.59
	Education Level	-0.03	0.04	-0.94
	Threat	0.86	0.11	7.59***
Threat + Time	-2 Log Likelihood = 2019.8***			
	Intercept	-0.95	0.21	-4.48***
	Gender	-0.11	0.09	-1.28
	Marital Status	0.47	0.09	5.4***
	Age	0.00	0.00	-0.03
	Education Level	-0.02	0.03	-0.63
	Threat	0.74	0.09	8.06***
	Time	1.58	0.08	19.23***
Threat X Time	-2 Log Likelihood = 2007.79***			
	Intercept	-0.95	0.21	-4.53***
	Gender	-0.11	0.09	-1.27
	Marital Status	0.48	0.09	5.5***
	Age	0.00	0.00	-0.16
	Education Level	-0.01	0.03	-0.38
	Threat	1.11	0.14	7.92***
	Time	1.57	0.08	19.34***
	ThreatXTime	-0.64	0.18	-3.48***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. For all outcomes except micro and macro worry, the intercept-only model estimates 2 parameters, the covariates only model estimates 6 parameters, the model including threat estimates 7 parameters, the model including threat and time estimates 8 parameters, and the model which also includes the interaction estimates 9 parameters. Micro and macro worry did not include time.

Table A.2 Predictors of Perceived Anthrax Threat

Model	*Predictor*	*b*	*SE*	*t*
When using correct/incorrect blame predictor (*df* = 550)				
Intercept Only	-2 Log Likelihood = 673.35			
	Intercept	0.00	0.02	-0.24
Time	-2 Log Likelihood = 669.99			
	Intercept	-0.04	0.03	-1.55
	Time	0.07	0.04	1.84
Covariates	-2 Log Likelihood = 658.64*			
	Intercept	-0.15	0.10	-1.41
	Time	0.07	0.04	1.82
	Gender	0.10	0.04	2.5*
	Marital Status	0.07	0.04	1.68
	Age	0.00	0.00	0.46
	Education Level	0.00	0.01	-0.1
Predictors	-2 Log Likelihood = 398.87***			
	Intercept	-1.21	0.14	-8.66***
	Time	0.07	0.03	2.2*
	Gender	0.00	0.03	0.07
	Marital Status	0.00	0.03	-0.09
	Age	0.00	0.00	3.71***
	Education Level	0.00	0.01	0.23
	Y/N Knew any 9/11 Victims	0.02	0.06	0.28
	Y/N Could have Prevented 9/11	0.02	0.03	0.66
	Y/N Could have Prevented Anthrax	-0.07	0.04	-1.98
	Y/N Accurate Blame	0.03	0.03	0.83
	Worry of Mail Exposure	0.39	0.03	13.93***
	9/11 Threat	0.06	0.01	5.82***
	9/11 Media Exposure	-0.01	0.01	-0.95
	Anthrax Media Exposure	0.01	0.01	0.5

Table A.2 – *Continued*

When using black sheep effect predictor (*df* = 541)				
Intercept Only	-2 Log Likelihood = 660.14			
	Intercept	0.00	0.02	0
Time	-2 Log Likelihood = 656.93			
	Intercept	-0.04	0.03	-1.45
	Time	0.07	0.04	1.79
Covariates	-2 Log Likelihood = 645.73*			
	Intercept	-0.14	0.10	-1.33
	Time	0.07	0.04	1.79
	Gender	0.11	0.04	2.64*
	Marital Status	0.06	0.04	1.41
	Age	0.00	0.00	0.5
	Education Level	0.00	0.01	-0.27
Predictors	-2 Log Likelihood = 387.63***			
	Intercept	-1.19	0.14	-8.48***
	Time	0.06	0.03	2.14*
	Gender	0.01	0.03	0.4
	Marital Status	-0.01	0.03	-0.19
	Age	0.00	0.00	3.75***
	Education Level	0.00	0.01	0.13
	Y/N Knew any 9/11 Victims	0.01	0.06	0.27
	Y/N Could have Prevented 9/11	0.02	0.03	0.57
	Y/N Could have Prevented Anthrax	-0.08	0.04	-2.16*
	Y/N Domestic Terrorist	0.01	0.04	0.15
	Worry of Mail Exposure	0.39	0.03	14.04***
	9/11 Threat	0.06	0.01	5.83***
	9/11 Media Exposure	-0.01	0.01	-0.91
	Anthrax Media Exposure	0.00	0.01	0.27

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. For each outcome, the intercept-only model estimates 2 parameters, the model including time estimates 3 parameters, the model including covariates estimates 7 parameters, and the model including all predictor estimates 15 parameters.

Table A.3 Predictors of mental health outcomes

		Correct/Incorrect Blame			Black Sheep Effect		
Model	*Predictor*	*b*	*SE*	*t*	*b*	*SE*	*t*
Perceived Stress		*df* = 540			*df* = 531		
Intercept Only	-2 Log Likelihood = 3495.02						
	Intercept	0.23	0.26	0.87	0.22	0.27	0
Time	-2 Log Likelihood = 3493.32						
	Intercept	0.63	0.40	1.56	0.63	0.41	1.55
	Time	-0.70	0.53	-1.3	-0.72	0.54	-1.34
Covariates	-2 Log Likelihood = 3463.06***						
	Intercept	0.03	1.41	0.02	-0.16	1.41	-0.11
	Time	-0.69	0.52	-1.33	-0.7	0.52	-1.35
	Gender	2.12	0.54	3.91***	2.25	0.54	4.15***
	Marital Status	-1.03	0.56	-1.84	-1.1	0.56	-1.95
	Age	-0.04	0.02	-2.03*	-0.04	0.02	-1.96
	Education Level	0.38	0.19	2.01	0.39	0.19	2.06*
Predictors	-2 Log Likelihood = 3424.41***						
	Intercept	-7.64	2.34	-3.26***	-7.57	2.32	-3.26***
	Time	-0.72	0.50	-1.44	-0.74	0.5	-1.46
	Gender	1.25	0.55	2.29*	1.44	0.54	2.67*
	Marital Status	-1.32	0.55	-2.39*	-1.28	0.55	-2.33*
	Age	-0.01	0.02	-0.39	-0.01	0.02	-0.36
	Education Level	0.43	0.18	2.32*	0.46	0.18	2.51*
	Y/N Knew any 9/11 Victims	-1.18	0.95	-1.25	-1.23	0.94	-1.31
	Y/N Could have Prevented 9/11	0.06	0.57	0.11	-0.05	0.57	-0.1
	Y/N Could have Prevented Anthrax	1.08	0.62	1.73	0.89	0.62	1.43
	Accurate Blame/Domestic Terrorist	0.81	0.50	1.61	0.99	0.59	1.67
	Worry of Mail Exposure	1.55	0.47	3.3***	1.62	0.46	3.5***
	9/11 Threat	0.55	0.17	3.25***	0.55	0.17	3.3***
	9/11 Media Exposure	0.16	0.14	1.15	0.15	0.14	1.03
	Anthrax Media Exposure	-0.05	0.20	-0.27	-0.05	0.2	-0.26
Threat	-2 Log Likelihood = 3410.2***						
	Intercept	-4.43	2.46	-1.8	-4.72	2.45	-1.93
	Time	-0.91	0.50	-1.82	-0.9	0.5	-1.8
	Gender	1.22	0.54	2.27*	1.39	0.54	2.59*
	Marital Status	-1.30	0.55	-2.38*	-1.26	0.55	-2.31*
	Age	-0.02	0.02	-0.92	-0.02	0.02	-0.84
	Education Level	0.42	0.18	2.32*	0.46	0.18	2.53*
	Y/N Knew any 9/11 Victims	-1.25	0.94	-1.34	-1.3	0.93	-1.39
	Y/N Could have Prevented 9/11	-0.04	0.56	-0.07	-0.14	0.56	-0.24
	Y/N Could have Prevented Anthrax	1.30	0.62	2.1*	1.11	0.62	1.79
	Accurate Blame/Domestic Terrorist	0.73	0.50	1.47	0.96	0.59	1.64
	Worry of Mail Exposure	0.50	0.54	0.93	0.67	0.54	1.25
	9/11 Threat	0.39	0.17	2.28*	0.41	0.17	2.41*
	9/11 Media Exposure	0.19	0.14	1.33	0.17	0.14	1.19
	Anthrax Media Exposure	-0.07	0.20	-0.36	-0.06	0.2	-0.31
	Anthrax Threat	2.68	0.71	3.79***	2.42	0.71	3.42***

Table A.3 – *Continued*

Threat X Time	-2 Log Likelihood = 3408.75						
	Intercept	-4.42	2.46	-1.8	-4.71	2.44	-1.93
	Time	-0.92	0.50	-1.85	-0.91	0.5	-1.82
	Gender	1.23	0.54	2.28*	1.39	0.54	2.6*
	Marital Status	-1.30	0.55	-2.39*	-1.26	0.54	-2.32*
	Age	-0.02	0.02	-0.93	-0.02	0.02	-0.86
	Education Level	0.44	0.18	2.39*	0.47	0.18	2.58*
	Y/N Knew any 9/11 Victims	-1.29	0.94	-1.37	-1.32	0.93	-1.42
	Y/N Could have Prevented 9/11	-0.03	0.56	-0.05	-0.13	0.56	-0.23
	Y/N Could have Prevented Anthrax	1.28	0.62	2.07*	1.09	0.62	1.77
	Accurate Blame/Domestic Terrorist	0.73	0.50	1.47	0.96	0.58	1.64
	Worry of Mail Exposure	0.56	0.54	1.04	0.72	0.54	1.33
	9/11 Threat	0.39	0.17	2.31*	0.41	0.17	2.43*
	9/11 Media Exposure	0.18	0.14	1.29	0.16	0.14	1.16
	Anthrax Media Exposure	-0.08	0.20	-0.42	-0.07	0.2	-0.35
	Anthrax Threat	3.39	0.92	3.68***	3.01	0.93	3.24***
	Anthrax ThreatXTime	-1.35	1.12	-1.2	-1.1	1.12	-0.97
Posttraumatic Stress			*df* = 548			*df* = 539	
Intercept Only	-2 Log Likelihood = 546.65						
	Intercept	-0.01	0.02	0	-0.01	0.02	0
Time	-2 Log Likelihood = 525.67***						
	Intercept	-0.10	0.03	-3.84***	-0.1	0.03	-3.78***
	Time	0.16	0.03	4.62***	0.16	0.03	4.62***
Covariates	-2 Log Likelihood = 502.17***						
	Intercept	-0.05	0.09	-0.6	-0.05	0.09	-0.54
	Time	0.15	0.03	4.61***	0.15	0.03	4.6***
	Gender	0.04	0.03	1.1	0.04	0.03	1.24
	Marital Status	0.12	0.04	3.49***	0.12	0.04	3.34***
	Age	0.00	0.00	0.14	0	0	0.18
	Education Level	-0.03	0.01	-2.35*	-0.03	0.01	-2.5*
Predictors	-2 Log Likelihood = 359.99***						
	Intercept	-0.85	0.14	-6.3***	-0.85	0.14	-6.24***
	Time	0.15	0.03	5.11***	0.15	0.03	5.05***
	Gender	-0.05	0.03	-1.43	-0.04	0.03	-1.12
	Marital Status	0.07	0.03	2.33*	0.08	0.03	2.5*
	Age	0.00	0.00	2.89***	0	0	2.83***
	Education Level	-0.02	0.01	-2.01*	-0.02	0.01	-1.92
	Y/N Knew any 9/11 Victims	0.01	0.05	0.13	0.01	0.05	0.12
	Y/N Could have Prevented 9/11	0.04	0.03	1.1	0.03	0.03	0.93
	Y/N Could have Prevented Anthrax	0.03	0.04	0.82	0.02	0.04	0.63
	Accurate Blame/Domestic Terrorist	0.04	0.03	1.45	0.08	0.03	2.28*
	Worry of Mail Exposure	0.16	0.03	6.04***	0.17	0.03	6.11***
	9/11 Threat	0.07	0.01	7.37***	0.07	0.01	7.22***
	9/11 Media Exposure	-0.02	0.01	-1.89	-0.02	0.01	-1.84
	Anthrax Media Exposure	0.03	0.01	2.85***	0.03	0.01	2.78*

Table A.3 – *Continued*

Threat	-2 Log Likelihood = 304.02***						
	Intercept	-0.50	0.14	-3.61***	-0.5	0.14	-3.66***
	Time	0.13	0.03	4.58***	0.13	0.03	4.54***
	Gender	-0.04	0.03	-1.49	-0.04	0.03	-1.26
	Marital Status	0.07	0.03	2.45*	0.08	0.03	2.67*
	Age	0.00	0.00	1.84	0	0	1.78
	Education Level	-0.02	0.01	-2.13*	-0.02	0.01	-2
	Y/N Knew any 9/11 Victims	0.00	0.05	0.07	0	0.05	0.06
	Y/N Could have Prevented 9/11	0.03	0.03	0.91	0.02	0.03	0.75
	Y/N Could have Prevented Anthrax	0.05	0.03	1.53	0.05	0.03	1.38
	Accurate Blame/Domestic Terrorist	0.04	0.03	1.29	0.08	0.03	2.42*
	Worry of Mail Exposure	0.05	0.03	1.55	0.05	0.03	1.65
	9/11 Threat	0.05	0.01	5.64***	0.05	0.01	5.5***
	9/11 Media Exposure	-0.01	0.01	-1.64	-0.01	0.01	-1.6
	Anthrax Media Exposure	0.03	0.01	2.83***	0.03	0.01	2.83***
	Anthrax Threat	0.30	0.04	7.68***	0.3	0.04	7.45***
Threat X Time	-2 Log Likelihood = 304.02						
	Intercept	-0.50	0.14	-3.61***	-0.5	0.14	-3.66***
	Time	0.13	0.03	4.58***	0.13	0.03	4.54***
	Gender	-0.04	0.03	-1.49	-0.04	0.03	-1.26
	Marital Status	0.07	0.03	2.45*	0.08	0.03	2.67*
	Age	0.00	0.00	1.84	0	0	1.78
	Education Level	-0.02	0.01	-2.13*	-0.02	0.01	-2
	Y/N Knew any 9/11 Victims	0.00	0.05	0.07	0	0.05	0.06
	Y/N Could have Prevented 9/11	0.03	0.03	0.91	0.02	0.03	0.75
	Y/N Could have Prevented Anthrax	0.05	0.03	1.53	0.05	0.03	1.38
	Accurate Blame/Domestic Terrorist	0.04	0.03	1.29	0.08	0.03	2.42*
	Worry of Mail Exposure	0.05	0.03	1.54	0.05	0.03	1.64
	9/11 Threat	0.05	0.01	5.63***	0.05	0.01	5.49***
	9/11 Media Exposure	-0.01	0.01	-1.64	-0.01	0.01	-1.6
	Anthrax Media Exposure	0.03	0.01	2.82***	0.03	0.01	2.83***
	Anthrax Threat	0.30	0.05	5.8***	0.3	0.05	5.58***
	Anthrax ThreatXTime	0.00	0.06	0	0	0.06	0.04
Positive Outlook Change			*df* = 523			*df* = 514	
Intercept Only	-2 Log Likelihood = 4100.94						
	Intercept	-0.69	0.53	0	-0.45	0.53	0
Time	-2 Log Likelihood = 4097.67						
	Intercept	-1.79	0.81	-2.22*	-1.57	0.81	-1.95
	Time	1.94	1.07	1.81	1.97	1.07	1.84
Covariates	-2 Log Likelihood = 4016.09***						
	Intercept	-10.14	2.70	-3.75***	-9.42	2.66	-3.55***
	Time	1.99	0.99	2	2	0.98	2.03*
	Gender	7.16	1.04	6.89***	7.14	1.03	6.94***
	Marital Status	2.56	1.07	2.38*	2.85	1.06	2.68*
	Age	0.16	0.04	4.69***	0.17	0.03	4.88***
	Education Level	-1.02	0.36	-2.81*	-1.2	0.36	-3.35***

Table A.3 – Continued

Predictors	-2 Log Likelihood = 3990.6***						
	Intercept	-17.94	4.53	-3.96***	-16.68	4.47	-3.73***
	Time	2.03	0.97	2.09*	2.04	0.96	2.11*
	Gender	6.29	1.06	5.94***	6.23	1.04	5.96***
	Marital Status	1.96	1.08	1.82	2.1	1.07	1.97
	Age	0.19	0.04	5.1***	0.2	0.04	5.45***
	Education Level	-0.88	0.36	-2.45*	-1.07	0.36	-3***
	Y/N Knew any 9/11 Victims	-1.63	1.82	-0.89	-1.6	1.8	-0.89
	Y/N Could have Prevented 9/11	-0.02	1.10	-0.02	0.26	1.09	0.24
	Y/N Could have Prevented Anthrax	-1.50	1.20	-1.25	-1.81	1.19	-1.53
	Accurate Blame/Domestic Terrorist	-1.71	0.98	-1.75	-0.89	1.14	-0.78
	Worry of Mail Exposure	0.33	0.92	0.36	0.3	0.9	0.34
	9/11 Threat	0.67	0.33	2.04*	0.76	0.32	2.37*
	9/11 Media Exposure	0.49	0.28	1.75	0.42	0.27	1.55
	Anthrax Media Exposure	0.54	0.39	1.37	0.31	0.39	0.8
Threat	-2 Log Likelihood = 3988.8						
	Intercept	-15.72	4.81	-3.27***	-15.03	4.75	-3.17***
	Time	1.92	0.97	1.97	1.96	0.97	2.02*
	Gender	6.30	1.06	5.96***	6.22	1.04	5.96***
	Marital Status	1.97	1.07	1.84	2.12	1.07	1.99
	Age	0.18	0.04	4.84***	0.19	0.04	5.23***
	Education Level	-0.89	0.36	-2.48*	-1.07	0.36	-3.01***
	Y/N Knew any 9/11 Victims	-1.65	1.82	-0.91	-1.61	1.79	-0.9
	Y/N Could have Prevented 9/11	-0.05	1.10	-0.04	0.25	1.09	0.23
	Y/N Could have Prevented Anthrax	-1.37	1.20	-1.14	-1.7	1.19	-1.43
	Accurate Blame/Domestic Terrorist	-1.74	0.97	-1.78	-0.88	1.14	-0.78
	Worry of Mail Exposure	-0.37	1.05	-0.36	-0.23	1.04	-0.22
	9/11 Threat	0.56	0.34	1.67	0.68	0.33	2.06*
	9/11 Media Exposure	0.49	0.28	1.79	0.43	0.27	1.57
	Anthrax Media Exposure	0.53	0.39	1.35	0.31	0.39	0.8
	Anthrax Threat	1.84	1.37	1.34	1.39	1.36	1.02
Threat X Time	-2 Log Likelihood = 3988.49						
	Intercept	-15.75	4.81	-3.27***	-15.05	4.75	-3.17***
	Time	1.91	0.97	1.96	1.95	0.97	2.01*
	Gender	6.29	1.06	5.95***	6.21	1.04	5.95***
	Marital Status	1.97	1.07	1.84	2.12	1.07	1.99
	Age	0.18	0.04	4.84***	0.19	0.04	5.23***
	Education Level	-0.87	0.36	-2.43*	-1.06	0.36	-2.98***
	Y/N Knew any 9/11 Victims	-1.68	1.82	-0.92	-1.63	1.79	-0.91
	Y/N Could have Prevented 9/11	-0.03	1.10	-0.03	0.26	1.09	0.24
	Y/N Could have Prevented Anthrax	-1.40	1.20	-1.16	-1.73	1.19	-1.45
	Accurate Blame/Domestic Terrorist	-1.74	0.97	-1.79	-0.89	1.14	-0.78
	Worry of Mail Exposure	-0.32	1.06	-0.3	-0.19	1.05	-0.18
	9/11 Threat	0.57	0.34	1.69	0.69	0.33	2.07*
	9/11 Media Exposure	0.49	0.28	1.77	0.43	0.27	1.56
	Anthrax Media Exposure	0.51	0.39	1.31	0.3	0.39	0.77
	Anthrax Threat	2.48	1.80	1.38	1.93	1.8	1.07
	Anthrax ThreatXTime	-1.23	2.22	-0.55	-1.01	2.21	-0.46

Table A.3 – Continued

Negative Outlook Change		*df* = 521			*df* = 513		
Intercept Only	-2 Log Likelihood = 3970.49						
	Intercept	0.02	0.48	0	0	0.48	0
Time	-2 Log Likelihood = 3967.45						
	Intercept	0.97	0.73	1.34	0.77	0.72	1.06
	Time	-1.68	0.96	-1.75	-1.35	0.96	-1.41
Covariates	-2 Log Likelihood = 3948.67***						
	Intercept	1.46	2.57	0.57	1.23	2.53	0.49
	Time	-1.79	0.95	-1.89	-1.48	0.94	-1.57
	Gender	0.92	0.99	0.93	1.22	0.98	1.25
	Marital Status	3.09	1.02	3.02***	3.04	1.01	3***
	Age	0.03	0.03	0.74	0.03	0.03	0.8
	Education Level	-0.78	0.35	-2.25*	-0.82	0.34	-2.41*
Predictors	-2 Log Likelihood = 3892.65***						
	Intercept	-17.56	4.23	-4.15***	-17.51	4.16	-4.2***
	Time	-1.89	0.90	-2.1*	-1.59	0.89	-1.79
	Gender	-0.81	0.98	-0.83	-0.4	0.96	-0.42
	Marital Status	2.35	1.00	2.36*	2.45	0.98	2.5*
	Age	0.08	0.03	2.34*	0.08	0.03	2.35*
	Education Level	-0.58	0.33	-1.73	-0.57	0.33	-1.73
	Y/N Knew any 9/11 Victims	1.22	1.69	0.72	1.19	1.66	0.72
	Y/N Could have Prevented 9/11	0.13	1.01	0.13	0.08	1	0.08
	Y/N Could have Prevented Anthrax	1.40	1.12	1.25	1.01	1.1	0.92
	Accurate Blame/Domestic Terrorist	1.01	0.90	1.12	1.64	1.05	1.55
	Worry of Mail Exposure	2.09	0.85	2.46*	2.1	0.83	2.53*
	9/11 Threat	1.35	0.30	4.46***	1.33	0.3	4.5***
	9/11 Media Exposure	0.06	0.26	0.25	0.06	0.25	0.25
	Anthrax Media Exposure	0.85	0.36	2.32*	0.85	0.36	2.35*
Threat	-2 Log Likelihood = 3888.48*						
	Intercept	-14.51	4.47	-3.24***	-14.98	4.4	-3.41***
	Time	-2.09	0.90	-2.32*	-1.76	0.89	-1.98
	Gender	-0.80	0.97	-0.82	-0.41	0.96	-0.43
	Marital Status	2.40	0.99	2.42*	2.5	0.98	2.55*
	Age	0.07	0.04	2.02*	0.07	0.03	2.07*
	Education Level	-0.58	0.33	-1.74	-0.57	0.33	-1.73
	Y/N Knew any 9/11 Victims	1.19	1.68	0.71	1.17	1.65	0.71
	Y/N Could have Prevented 9/11	0.10	1.01	0.1	0.06	1	0.06
	Y/N Could have Prevented Anthrax	1.61	1.12	1.44	1.21	1.11	1.1
	Accurate Blame/Domestic Terrorist	0.98	0.90	1.09	1.64	1.05	1.56
	Worry of Mail Exposure	1.07	0.98	1.09	1.23	0.97	1.28
	9/11 Threat	1.20	0.31	3.89***	1.21	0.3	3.97***
	9/11 Media Exposure	0.08	0.25	0.32	0.08	0.25	0.32
	Anthrax Media Exposure	0.83	0.36	2.29*	0.84	0.36	2.34*
	Anthrax Threat	2.61	1.27	2.05*	2.21	1.27	1.75

Table A.3 – Continued

Threat X Time	-2 Log Likelihood = 3887.91						
	Intercept	-14.53	4.47	-3.25***	-14.99	4.4	-3.41***
	Time	-2.12	0.90	-2.35*	-1.78	0.89	-2
	Gender	-0.81	0.97	-0.84	-0.42	0.96	-0.44
	Marital Status	2.41	0.99	2.43*	2.51	0.98	2.57*
	Age	0.07	0.03	2.04*	0.07	0.03	2.08*
	Education Level	-0.57	0.33	-1.7	-0.56	0.33	-1.7
	Y/N Knew any 9/11 Victims	1.16	1.68	0.69	1.15	1.65	0.7
	Y/N Could have Prevented 9/11	0.10	1.01	0.1	0.06	1	0.06
	Y/N Could have Prevented Anthrax	1.58	1.12	1.41	1.19	1.11	1.08
	Accurate Blame/Domestic Terrorist	0.98	0.90	1.09	1.64	1.05	1.56
	Worry of Mail Exposure	1.15	0.98	1.17	1.29	0.97	1.33
	9/11 Threat	1.21	0.31	3.91***	1.21	0.3	3.99***
	9/11 Media Exposure	0.07	0.25	0.29	0.07	0.25	0.29
	Anthrax Media Exposure	0.81	0.36	2.24*	0.83	0.36	2.31*
	Anthrax Threat	3.44	1.68	2.04*	2.85	1.68	1.7
	Anthrax ThreatXTime	-1.55	2.05	-0.75	-1.18	2.03	-0.58
Micro Worries			*df* = 235			*df* = 231	
Intercept Only	-2 Log Likelihood = 490.6						
	Intercept	0.00	0.04	0	0	0.05	0
Covariates	-2 Log Likelihood = 472.82**						
	Intercept	0.28	0.23	1.22	0.29	0.23	1.25
	Gender	0.15	0.09	1.64	0.16	0.09	1.75
	Marital Status	0.20	0.10	2.11*	0.21	0.1	2.2*
	Age	-0.01	0.00	-2.19*	-0.01	0	-2.17*
	Education Level	-0.03	0.03	-0.91	-0.03	0.03	-1.03
Predictors	-2 Log Likelihood = 436.04***						
	Intercept	-0.83	0.38	-2.2*	-0.82	0.37	-2.18*
	Gender	0.05	0.09	0.6	0.06	0.09	0.71
	Marital Status	0.16	0.09	1.79	0.19	0.09	2.07*
	Age	0.00	0.00	-0.49	0	0	-0.49
	Education Level	-0.01	0.03	-0.47	-0.01	0.03	-0.48
	Y/N Knew any 9/11 Victims	-0.08	0.15	-0.52	-0.08	0.15	-0.56
	Y/N Could have Prevented 9/11	0.22	0.09	2.43*	0.21	0.09	2.28*
	Y/N Could have Prevented Anthrax	-0.04	0.10	-0.39	-0.06	0.1	-0.63
	Accurate Blame/Domestic Terrorist	0.03	0.08	0.37	0.16	0.1	1.64
	Worry of Mail Exposure	0.23	0.08	3.01***	0.24	0.07	3.19***
	9/11 Threat	0.10	0.03	3.77***	0.11	0.03	3.95***
	9/11 Media Exposure	0.03	0.02	1.46	0.03	0.02	1.42
	Anthrax Media Exposure	-0.06	0.03	-1.93	-0.07	0.03	-2.19*

Table A.3 – Continued

Threat	-2 Log Likelihood = 426.12**						
	Intercept	-0.37	0.40	-0.94	-0.43	0.39	-1.08
	Gender	0.05	0.09	0.59	0.06	0.09	0.66
	Marital Status	0.16	0.09	1.78	0.18	0.09	2.06*
	Age	0.00	0.00	-1.15	0	0	-1.06
	Education Level	-0.01	0.03	-0.28	-0.01	0.03	-0.3
	Y/N Knew any 9/11 Victims	-0.11	0.15	-0.71	-0.11	0.15	-0.73
	Y/N Could have Prevented 9/11	0.22	0.09	2.47*	0.21	0.09	2.33*
	Y/N Could have Prevented Anthrax	-0.03	0.10	-0.27	-0.05	0.1	-0.49
	Accurate Blame/Domestic Terrorist	0.02	0.08	0.25	0.15	0.1	1.61
	Worry of Mail Exposure	0.11	0.08	1.37	0.14	0.08	1.66
	9/11 Threat	0.08	0.03	3.04***	0.09	0.03	3.26***
	9/11 Media Exposure	0.03	0.02	1.42	0.03	0.02	1.38
	Anthrax Media Exposure	-0.07	0.03	-2.13*	-0.07	0.03	-2.32*
	Anthrax Threat	0.34	0.11	3.18***	0.3	0.11	2.74*
Macro Worries			*df* = 235			*df* = 231	
Intercept Only	-2 Log Likelihood = 540.55						
	Intercept	-0.05	0.05	0	-0.04	0.05	0
Covariates	-2 Log Likelihood = 527.94*						
	Intercept	-0.68	0.26	-2.6*	-0.65	0.26	-2.51*
	Gender	0.26	0.10	2.54*	0.27	0.1	2.59*
	Marital Status	0.14	0.11	1.34	0.15	0.11	1.41
	Age	0.01	0.00	2.43*	0.01	0	2.51*
	Education Level	0.01	0.04	0.28	0	0.04	0.06
Predictors	-2 Log Likelihood = 499.66***						
	Intercept	-1.46	0.43	-3.38***	-1.42	0.43	-3.3***
	Gender	0.13	0.10	1.28	0.13	0.1	1.31
	Marital Status	0.09	0.10	0.85	0.09	0.1	0.89
	Age	0.01	0.00	3.46***	0.01	0	3.67***
	Education Level	0.02	0.03	0.49	0.01	0.03	0.28
	Y/N Knew any 9/11 Victims	-0.15	0.17	-0.88	-0.15	0.17	-0.88
	Y/N Could have Prevented 9/11	-0.10	0.11	-0.96	-0.11	0.11	-1
	Y/N Could have Prevented Anthrax	-0.01	0.11	-0.13	-0.03	0.11	-0.3
	Accurate Blame/Domestic Terrorist	-0.07	0.09	-0.7	-0.01	0.11	-0.09
	Worry of Mail Exposure	0.07	0.09	0.85	0.08	0.09	0.94
	9/11 Threat	0.10	0.03	3.31***	0.11	0.03	3.61***
	9/11 Media Exposure	-0.01	0.03	-0.25	-0.01	0.03	-0.34
	Anthrax Media Exposure	0.08	0.04	2.25*	0.07	0.04	1.85

Table A.3 – Continued

Threat	-2 Log Likelihood = 486.58***						
	Intercept	-0.86	0.45	-1.91	-0.91	0.45	-2.02
	Gender	0.13	0.10	1.3	0.13	0.1	1.26
	Marital Status	0.08	0.10	0.82	0.09	0.1	0.87
	Age	0.01	0.00	2.73*	0.01	0	3***
	Education Level	0.02	0.03	0.73	0.02	0.03	0.49
	Y/N Knew any 9/11 Victims	-0.19	0.17	-1.11	-0.18	0.17	-1.07
	Y/N Could have Prevented 9/11	-0.10	0.10	-1	-0.1	0.1	-1.01
	Y/N Could have Prevented Anthrax	0.00	0.11	0.01	-0.01	0.11	-0.13
	Accurate Blame/Domestic Terrorist	-0.08	0.09	-0.87	-0.02	0.11	-0.16
	Worry of Mail Exposure	-0.08	0.09	-0.82	-0.05	0.09	-0.55
	9/11 Threat	0.08	0.03	2.49*	0.09	0.03	2.85***
	9/11 Media Exposure	-0.01	0.03	-0.33	-0.01	0.03	-0.41
	Anthrax Media Exposure	0.08	0.04	2.12*	0.06	0.04	1.78
	Anthrax Threat	0.45	0.12	3.67***	0.38	0.12	3.11***
Perceived Safety of Building Entry			*df* = 549			*df* = 540	
Intercept Only	-2 Log Likelihood = 4268.72						
	Intercept	-0.17	0.50	0.78	-0.23	0.51	0
Time	-2 Log Likelihood = 4268.71						
	Intercept	-0.14	0.77	-0.18	-0.13	0.78	-0.16
	Time	-0.06	1.02	-0.06	-0.17	1.03	-0.17
Covariates	-2 Log Likelihood = 4237.54***						
	Intercept	-2.53	2.68	-0.94	-2.77	2.69	-1.03
	Time	0.06	0.99	0.06	-0.06	1	-0.06
	Gender	-4.41	1.03	-4.27***	-4.23	1.04	-4.05***
	Marital Status	-1.02	1.07	-0.96	-0.9	1.08	-0.84
	Age	0.05	0.04	1.3	0.04	0.04	1.27
	Education Level	0.74	0.36	2.06*	0.79	0.36	2.17*
Predictors	-2 Log Likelihood = 4084.89***						
	Intercept	20.05	4.03	4.98***	20.59	4.06	5.07***
	Time	0.10	0.86	0.12	0.06	0.88	0.06
	Gender	-2.57	0.94	-2.74*	-2.32	0.94	-2.46*
	Marital Status	0.14	0.95	0.14	0.19	0.96	0.2
	Age	-0.02	0.03	-0.68	-0.02	0.03	-0.69
	Education Level	0.68	0.32	2.14*	0.69	0.32	2.13*
	Y/N Knew any 9/11 Victims	-0.76	1.61	-0.47	-0.77	1.62	-0.48
	Y/N Could have Prevented 9/11	0.46	0.97	0.47	0.44	0.99	0.45
	Y/N Could have Prevented Anthrax	-0.29	1.07	-0.27	-0.5	1.08	-0.46
	Accurate Blame/Domestic Terrorist	0.95	0.87	1.1	-0.5	1.03	-0.49
	Worry of Mail Exposure	-8.41	0.81	-10.43***	-8.31	0.81	-10.27***
	9/11 Threat	-1.06	0.29	-3.68***	-1.04	0.29	-3.6***
	9/11 Media Exposure	0.33	0.25	1.35	0.33	0.25	1.31
	Anthrax Media Exposure	-0.42	0.35	-1.22	-0.44	0.35	-1.27

Table A.3 – Continued

Threat	-2 Log Likelihood = 4078.41*						
	Intercept	16.34	4.26	3.83***	16.5	4.28	3.85***
	Time	0.32	0.86	0.37	0.3	0.87	0.34
	Gender	-2.57	0.93	-2.76*	-2.29	0.94	-2.45*
	Marital Status	0.13	0.95	0.14	0.17	0.95	0.18
	Age	-0.01	0.03	-0.28	-0.01	0.03	-0.25
	Education Level	0.68	0.32	2.16*	0.68	0.32	2.14*
	Y/N Knew any 9/11 Victims	-0.72	1.60	-0.45	-0.73	1.6	-0.46
	Y/N Could have Prevented 9/11	0.54	0.97	0.55	0.53	0.98	0.54
	Y/N Could have Prevented Anthrax	-0.53	1.07	-0.5	-0.79	1.07	-0.74
	Accurate Blame/Domestic Terrorist	1.02	0.86	1.19	-0.52	1.03	-0.5
	Worry of Mail Exposure	-7.19	0.93	-7.72***	-6.94	0.94	-7.4***
	9/11 Threat	-0.88	0.30	-2.96***	-0.84	0.3	-2.81*
	9/11 Media Exposure	0.30	0.24	1.25	0.3	0.25	1.2
	Anthrax Media Exposure	-0.40	0.34	-1.17	-0.43	0.35	-1.24
	Anthrax Threat	-3.13	1.23	-2.55*	-3.53	1.24	-2.84***
Threat X Time	-2 Log Likelihood = 4076.01						
	Intercept	16.34	4.25	3.84***	16.5	4.27	3.86***
	Time	0.37	0.86	0.43	0.35	0.87	0.4
	Gender	-2.58	0.93	-2.78*	-2.3	0.93	-2.47*
	Marital Status	0.14	0.94	0.14	0.18	0.95	0.19
	Age	-0.01	0.03	-0.27	-0.01	0.03	-0.23
	Education Level	0.65	0.32	2.06*	0.65	0.32	2.03*
	Y/N Knew any 9/11 Victims	-0.64	1.60	-0.4	-0.65	1.6	-0.4
	Y/N Could have Prevented 9/11	0.51	0.97	0.53	0.5	0.98	0.51
	Y/N Could have Prevented Anthrax	-0.48	1.06	-0.45	-0.75	1.07	-0.7
	Accurate Blame/Domestic Terrorist	1.02	0.86	1.18	-0.52	1.02	-0.5
	Worry of Mail Exposure	-7.32	0.93	-7.85***	-7.07	0.94	-7.54***
	9/11 Threat	-0.89	0.30	-3***	-0.85	0.3	-2.85***
	9/11 Media Exposure	0.32	0.24	1.3	0.31	0.25	1.25
	Anthrax Media Exposure	-0.38	0.34	-1.1	-0.41	0.35	-1.17
	Anthrax Threat	-4.78	1.62	-2.95***	-5.41	1.65	-3.29***
	Anthrax ThreatXTime	3.03	1.95	1.55	3.43	1.97	1.74
Change in Illness Monitoring			*df* = 547			*df* = 538	
Intercept Only	-2 Log Likelihood = 1877.48						
	Intercept	-0.06	0.06	0	-0.06	0.06	0
Time	-2 Log Likelihood = 1671.39***						
	Intercept	-0.94	0.07	-12.81***	-0.93	0.07	-12.57***
	Time	1.53	0.10	15.82***	1.52	0.1	15.57***
Covariates	-2 Log Likelihood = 1637.03***						
	Intercept	-1.08	0.25	-4.26***	-1.07	0.25	-4.19***
	Time	1.51	0.09	16.19***	1.5	0.09	15.93***
	Gender	0.02	0.10	0.17	0	0.1	0.03
	Marital Status	0.57	0.10	5.7***	0.58	0.1	5.74***
	Age	0.00	0.00	-0.47	0	0	-0.41
	Education Level	0.00	0.03	0.12	0	0.03	0.07

Table A.3 – Continued

Predictors	-2 Log Likelihood = 1559.53***						
	Intercept	-3.04	0.41	-7.49***	-3.01	0.41	-7.39***
	Time	1.51	0.09	17.3***	1.5	0.09	17.05***
	Gender	-0.10	0.09	-1.06	-0.11	0.09	-1.21
	Marital Status	0.49	0.10	5.11***	0.5	0.1	5.19***
	Age	0.00	0.00	0.83	0	0	0.93
	Education Level	0.02	0.03	0.52	0.02	0.03	0.47
	Y/N Knew any 9/11 Victims	0.20	0.16	1.25	0.2	0.16	1.22
	Y/N Could have Prevented 9/11	0.09	0.10	0.91	0.1	0.1	0.99
	Y/N Could have Prevented Anthrax	-0.02	0.11	-0.18	-0.03	0.11	-0.26
	Accurate Blame/Domestic Terrorist	-0.02	0.09	-0.21	-0.04	0.1	-0.43
	Worry of Mail Exposure	0.60	0.08	7.35***	0.6	0.08	7.45***
	9/11 Threat	0.06	0.03	1.96	0.06	0.03	2.12*
	9/11 Media Exposure	0.02	0.02	0.68	0.01	0.02	0.46
	Anthrax Media Exposure	0.00	0.03	0.1	0	0.04	0.07
Threat	-2 Log Likelihood = 1551.23**						
	Intercept	-2.61	0.43	-6.07***	-2.58	0.43	-5.99***
	Time	1.49	0.09	17.08***	1.48	0.09	16.84***
	Gender	-0.10	0.09	-1.08	-0.12	0.09	-1.27
	Marital Status	0.49	0.10	5.16***	0.5	0.1	5.26***
	Age	0.00	0.00	0.37	0	0	0.46
	Education Level	0.02	0.03	0.49	0.01	0.03	0.46
	Y/N Knew any 9/11 Victims	0.20	0.16	1.22	0.19	0.16	1.2
	Y/N Could have Prevented 9/11	0.08	0.10	0.84	0.09	0.1	0.93
	Y/N Could have Prevented Anthrax	0.01	0.11	0.07	0	0.11	0.02
	Accurate Blame/Domestic Terrorist	-0.03	0.09	-0.32	-0.05	0.1	-0.46
	Worry of Mail Exposure	0.46	0.09	4.9***	0.46	0.09	4.92***
	9/11 Threat	0.04	0.03	1.22	0.04	0.03	1.36
	9/11 Media Exposure	0.02	0.02	0.81	0.01	0.02	0.58
	Anthrax Media Exposure	0.00	0.03	0.04	0	0.03	0.04
	Anthrax Threat	0.35	0.12	2.89***	0.36	0.12	2.93***

Table A.3 – Continued

Threat X Time	-2 Log Likelihood = 1542.15**						
	Intercept	-2.61	0.43	-6.12***	-2.57	0.43	-6.03***
	Time	1.48	0.09	17.12***	1.47	0.09	16.9***
	Gender	-0.10	0.09	-1.09	-0.12	0.09	-1.28
	Marital Status	0.49	0.09	5.21***	0.5	0.09	5.3***
	Age	0.00	0.00	0.33	0	0	0.4
	Education Level	0.02	0.03	0.66	0.02	0.03	0.62
	Y/N Knew any 9/11 Victims	0.19	0.16	1.15	0.18	0.16	1.13
	Y/N Could have Prevented 9/11	0.09	0.10	0.9	0.1	0.1	0.99
	Y/N Could have Prevented Anthrax	0.00	0.11	-0.03	-0.01	0.11	-0.07
	Accurate Blame/Domestic Terrorist	-0.03	0.09	-0.34	-0.05	0.1	-0.5
	Worry of Mail Exposure	0.49	0.09	5.2***	0.49	0.09	5.2***
	9/11 Threat	0.04	0.03	1.32	0.04	0.03	1.44
	9/11 Media Exposure	0.02	0.02	0.71	0.01	0.02	0.49
	Anthrax Media Exposure	0.00	0.03	-0.1	0	0.03	-0.1
	Anthrax Threat	0.67	0.16	4.18***	0.68	0.16	4.18***
	Anthrax ThreatXTime	-0.59	0.19	-3.03***	-0.58	0.2	-2.97***

*p < 0.05; **p < 0.01; ***p < 0.001

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. Values on the left side were produced when using Y/N Accuracte Blame as a predictor, while values on the right side were produced when using Y/N Domestic Terrorist instead as a predictor. For each outcome except micro and macro worries, the intercept-only model estimates 2 parameters, the time model estimates 3 parameters, the covariates model estimates 7 parameters, the model including predictors estimates 15 parameters, the model including threat and time estimates 16 parameters, and the model which also includes the interaction estimates 17 parameters. Micro and macro worries models do not include time and therefore estimate 2, 6, 14, and 15 parameters, respectively.

Table A.4 Predictors of Safety Behaviors

		Correct/Incorrect Blame			Black Sheep Effect		
Model	*Predictor*	*b*	*SE*	*t*	*b*	*SE*	*t*
Perceived Safety of Building Entry			*df* = 494			df = 486	
Intercept Only	-2 Log Likelihood = 3820.84						
	Intercept	0.15	0.52	0.29	0.12	0.52	0
Time	-2 Log Likelihood = 3820.69						
	Intercept	-0.08	0.79	-0.1	-0.07	0.8	-0.09
	Time	0.41	1.05	0.39	0.34	1.06	0.32
Covariates	-2 Log Likelihood = 3789.9***						
	Intercept	-1.47	2.80	-0.53	-1.67	2.81	-0.59
	Time	0.58	1.02	0.57	0.48	1.03	0.47
	Gender	-4.85	1.07	-4.54***	-4.72	1.08	-4.38***
	Marital Status	-0.69	1.11	-0.62	-0.49	1.12	-0.44
	Age	0.05	0.04	1.39	0.05	0.04	1.36
	Education Level	0.47	0.38	1.24	0.5	0.38	1.32
Predictors	-2 Log Likelihood = 3644.91***						
	Intercept	19.73	4.16	4.74***	20.27	4.19	4.83***
	Time	0.35	0.88	0.39	0.28	0.89	0.32
	Gender	-3.00	0.97	-3.1***	-2.81	0.97	-2.89***
	Marital Status	0.12	0.98	0.12	0.28	0.99	0.29
	Age	-0.02	0.03	-0.48	-0.02	0.03	-0.52
	Education Level	0.42	0.33	1.28	0.42	0.33	1.27
	Y/N Knew any 9/11 Victims	-0.33	1.67	-0.2	-0.34	1.68	-0.2
	Y/N Could have Prevented 9/11	0.06	1.00	0.06	0.03	1.02	0.03
	Y/N Could have Prevented Anthrax	0.44	1.10	0.4	0.24	1.11	0.21
	Accurate Blame/Domestic Terrorist	1.10	0.88	1.24	0.09	1.06	0.09
	Worry of Mail Exposure	-8.96	0.83	-10.74***	-8.87	0.84	-10.55***
	9/11 Threat	-0.93	0.30	-3.14***	-0.93	0.3	-3.11***
	9/11 Media Exposure	0.35	0.25	1.4	0.35	0.25	1.38
	Anthrax Media Exposure	-0.19	0.35	-0.53	-0.21	0.36	-0.59
Threat	-2 Log Likelihood = 3642.17						
	Intercept	17.36	4.39	3.96***	17.58	4.41	3.98***
	Time	0.52	0.89	0.59	0.49	0.9	0.54
	Gender	-3.01	0.96	-3.12***	-2.81	0.97	-2.9***
	Marital Status	0.08	0.98	0.08	0.23	0.99	0.24
	Age	-0.01	0.03	-0.26	-0.01	0.03	-0.26
	Education Level	0.42	0.33	1.28	0.42	0.33	1.26
	Y/N Knew any 9/11 Victims	-0.29	1.67	-0.18	-0.3	1.68	-0.18
	Y/N Could have Prevented 9/11	0.12	1.00	0.12	0.1	1.01	0.1
	Y/N Could have Prevented Anthrax	0.25	1.11	0.22	-0.01	1.12	-0.01
	Accurate Blame/Domestic Terrorist	1.11	0.88	1.26	0.07	1.06	0.06
	Worry of Mail Exposure	-8.17	0.96	-8.5***	-7.94	0.97	-8.19***
	9/11 Threat	-0.82	0.30	-2.68*	-0.79	0.31	-2.59*
	9/11 Media Exposure	0.33	0.25	1.34	0.33	0.25	1.31
	Anthrax Media Exposure	-0.17	0.35	-0.49	-0.2	0.36	-0.57
	Anthrax Threat	-2.08	1.25	-1.66	-2.43	1.27	-1.9

Table A.4 – *Continued*

Threat X Time	-2 Log Likelihood = 3638.14*						
	Intercept	17.54	4.37	4.01***	17.76	4.39	4.05***
	Time	0.59	0.88	0.67	0.56	0.89	0.62
	Gender	-3.01	0.96	-3.13***	-2.8	0.96	-2.9***
	Marital Status	0.08	0.97	0.08	0.23	0.98	0.24
	Age	-0.01	0.03	-0.33	-0.01	0.03	-0.32
	Education Level	0.37	0.33	1.13	0.36	0.33	1.09
	Y/N Knew any 9/11 Victims	-0.23	1.66	-0.14	-0.23	1.67	-0.14
	Y/N Could have Prevented 9/11	0.11	1.00	0.11	0.09	1.01	0.09
	Y/N Could have Prevented Anthrax	0.32	1.10	0.29	0.06	1.11	0.05
	Accurate Blame/Domestic Terrorist	1.10	0.88	1.26	0.05	1.05	0.04
	Worry of Mail Exposure	-8.35	0.96	-8.69***	-8.13	0.97	-8.4***
	9/11 Threat	-0.83	0.30	-2.74*	-0.8	0.3	-2.63*
	9/11 Media Exposure	0.34	0.25	1.39	0.34	0.25	1.36
	Anthrax Media Exposure	-0.13	0.35	-0.36	-0.16	0.36	-0.43
	Anthrax Threat	-4.24	1.65	-2.58*	-4.9	1.68	-2.91***
	Anthrax ThreatXTime	4.07	2.02	2.01*	4.58	2.05	2.24*
Outcomes	-2 Log Likelihood = 3614.33***						
	Intercept	13.71	4.36	3.14***	13.56	4.37	3.1***
	Time	0.99	0.90	1.1	0.98	0.91	1.08
	Gender	-3.20	0.98	-3.25***	-2.79	0.99	-2.83***
	Marital Status	0.47	0.97	0.48	0.66	0.98	0.67
	Age	0.00	0.03	0.06	0	0.04	0.13
	Education Level	0.29	0.33	0.89	0.28	0.33	0.85
	Y/N Knew any 9/11 Victims	-0.17	1.63	-0.1	-0.23	1.63	-0.14
	Y/N Could have Prevented 9/11	0.22	0.97	0.23	0.2	0.98	0.2
	Y/N Could have Prevented Anthrax	0.74	1.08	0.68	0.39	1.09	0.36
	Accurate Blame/Domestic Terrorist	1.42	0.86	1.64	0.54	1.03	0.52
	Worry of Mail Exposure	-7.97	0.94	-8.46***	-7.69	0.95	-8.13***
	9/11 Threat	-0.48	0.31	-1.58	-0.44	0.31	-1.43
	9/11 Media Exposure	0.30	0.24	1.21	0.3	0.25	1.24
	Anthrax Media Exposure	0.07	0.35	0.19	0.04	0.35	0.1
	Anthrax Threat	-2.48	1.66	-1.5	-3.17	1.69	-1.88
	Anthrax ThreatXTime	3.80	1.98	1.92	4.33	2	2.17*
	Perceived Stress	-0.05	0.09	-0.6	-0.08	0.09	-0.88
	Posttraumatic Stress	-4.91	1.47	-3.33***	-4.81	1.48	-3.25***
	Positive Outlook Change	0.01	0.04	0.14	-0.01	0.04	-0.25
	Negative Outlook Change	-0.07	0.05	-1.5	-0.08	0.05	-1.52

Table A.4 – *Continued*

Outcomes X Tir	-2 Log Likelihood = 3612.41						
	Intercept	13.55	4.36	3.11***	13.41	4.37	3.07***
	Time	1.12	0.91	1.24	1.1	0.91	1.21
	Gender	-3.20	0.98	-3.26***	-2.82	0.99	-2.86***
	Marital Status	0.55	0.98	0.56	0.73	0.98	0.75
	Age	0.00	0.03	-0.02	0	0.04	0.06
	Education Level	0.32	0.33	0.98	0.32	0.33	0.95
	Y/N Knew any 9/11 Victims	-0.13	1.63	-0.08	-0.21	1.63	-0.13
	Y/N Could have Prevented 9/11	0.22	0.97	0.23	0.19	0.98	0.2
	Y/N Could have Prevented Anthrax	0.80	1.08	0.74	0.45	1.09	0.41
	Accurate Blame/Domestic Terrorist	1.35	0.86	1.57	0.55	1.03	0.53
	Worry of Mail Exposure	-8.07	0.94	-8.55***	-7.8	0.95	-8.22***
	9/11 Threat	-0.48	0.30	-1.57	-0.43	0.31	-1.42
	9/11 Media Exposure	0.29	0.24	1.17	0.3	0.25	1.2
	Anthrax Media Exposure	0.09	0.35	0.26	0.06	0.35	0.16
	Anthrax Threat	-1.83	1.82	-1	-2.42	1.84	-1.32
	Anthrax ThreatXTime	2.82	2.25	1.25	3.25	2.27	1.43
	Perceived Stress	-0.04	0.12	-0.34	-0.07	0.12	-0.6
	Posttraumatic Stress	-7.06	2.29	-3.09***	-7.07	2.3	-3.08***
	Positive Outlook Change	0.00	0.06	0.04	-0.01	0.06	-0.14
	Negative Outlook Change	-0.03	0.07	-0.45	-0.04	0.07	-0.51
	Perceived Stress X Time	-0.05	0.16	-0.28	-0.03	0.17	-0.2
	Posttraumatic Stress X Time	3.76	2.96	1.27	3.9	2.97	1.32
	Positive Outlook Change X Time	0.00	0.07	0.02	-0.01	0.07	-0.09
	Negative Outlook Change X Time	-0.08	0.10	-0.84	-0.07	0.1	-0.72
Illness Vigilance			*df* = 491			df = 483	
Intercept Only	-2 Log Likelihood = 1683.58						
	Intercept	-0.08	0.06	0	-0.08	0.06	0
Time	-2 Log Likelihood = 1503.25***						
	Intercept	-0.93	0.08	-12.19***	-0.92	0.08	-11.94***
	Time	1.50	0.10	14.76***	1.5	0.1	14.54***
Covariates	-2 Log Likelihood = 1476.89***						
	Intercept	-0.97	0.27	-3.56***	-0.95	0.27	-3.49***
	Time	1.48	0.10	14.89***	1.47	0.1	14.65***
	Gender	0.01	0.10	0.13	0	0.1	-0.04
	Marital Status	0.53	0.11	4.89***	0.54	0.11	4.98***
	Age	0.00	0.00	-0.76	0	0	-0.69
	Education Level	0.00	0.04	-0.05	0	0.04	-0.12

Table A.4 – *Continued*

Predictors	-2 Log Likelihood = 1415.84***						
	Intercept	-2.77	0.44	-6.28***	-2.73	0.44	-6.18***
	Time	1.49	0.09	15.94***	1.48	0.09	15.71***
	Gender	-0.10	0.10	-0.96	-0.12	0.1	-1.13
	Marital Status	0.47	0.10	4.52***	0.49	0.1	4.67***
	Age	0.00	0.00	0.32	0	0	0.44
	Education Level	0.01	0.03	0.27	0.01	0.04	0.21
	Y/N Knew any 9/11 Victims	0.20	0.18	1.1	0.19	0.18	1.07
	Y/N Could have Prevented 9/11	0.10	0.11	0.89	0.11	0.11	0.99
	Y/N Could have Prevented Anthrax	-0.08	0.12	-0.65	-0.09	0.12	-0.73
	Accurate Blame/Domestic Terrorist	-0.02	0.09	-0.21	-0.05	0.11	-0.46
	Worry of Mail Exposure	0.59	0.09	6.72***	0.6	0.09	6.82***
	9/11 Threat	0.05	0.03	1.48	0.05	0.03	1.66
	9/11 Media Exposure	0.02	0.03	0.64	0.01	0.03	0.41
	Anthrax Media Exposure	-0.01	0.04	-0.25	-0.01	0.04	-0.3
Threat	-2 Log Likelihood = 1408.53**						
	Intercept	-2.36	0.46	-5.1***	-2.32	0.46	-5.02***
	Time	1.46	0.09	15.62***	1.45	0.09	15.4***
	Gender	-0.10	0.10	-0.94	-0.12	0.1	-1.14
	Marital Status	0.48	0.10	4.61***	0.49	0.1	4.78***
	Age	0.00	0.00	-0.03	0	0	0.06
	Education Level	0.01	0.03	0.28	0.01	0.03	0.23
	Y/N Knew any 9/11 Victims	0.19	0.18	1.08	0.19	0.18	1.05
	Y/N Could have Prevented 9/11	0.09	0.11	0.8	0.1	0.11	0.9
	Y/N Could have Prevented Anthrax	-0.04	0.12	-0.36	-0.05	0.12	-0.41
	Accurate Blame/Domestic Terrorist	-0.02	0.09	-0.25	-0.05	0.11	-0.43
	Worry of Mail Exposure	0.46	0.10	4.52***	0.46	0.1	4.55***
	9/11 Threat	0.03	0.03	0.83	0.03	0.03	0.97
	9/11 Media Exposure	0.02	0.03	0.76	0.01	0.03	0.52
	Anthrax Media Exposure	-0.01	0.04	-0.31	-0.01	0.04	-0.33
	Anthrax Threat	0.36	0.13	2.71*	0.37	0.13	2.77*
Threat X Time	-2 Log Likelihood = 1397.13***						
	Intercept	-2.39	0.46	-5.23***	-2.35	0.46	-5.14***
	Time	1.45	0.09	15.65***	1.44	0.09	15.44***
	Gender	-0.10	0.10	-0.96	-0.12	0.1	-1.17
	Marital Status	0.47	0.10	4.66***	0.49	0.1	4.83***
	Age	0.00	0.00	0.05	0	0	0.13
	Education Level	0.02	0.03	0.54	0.02	0.03	0.49
	Y/N Knew any 9/11 Victims	0.18	0.18	1.05	0.18	0.18	1.02
	Y/N Could have Prevented 9/11	0.09	0.10	0.82	0.1	0.11	0.91
	Y/N Could have Prevented Anthrax	-0.06	0.12	-0.48	-0.06	0.12	-0.5
	Accurate Blame/Domestic Terrorist	-0.02	0.09	-0.25	-0.05	0.11	-0.41
	Worry of Mail Exposure	0.49	0.10	4.87***	0.49	0.1	4.88***
	9/11 Threat	0.03	0.03	0.91	0.03	0.03	1.02
	9/11 Media Exposure	0.02	0.03	0.69	0.01	0.03	0.46
	Anthrax Media Exposure	-0.02	0.04	-0.54	-0.02	0.04	-0.54
	Anthrax Threat	0.74	0.17	4.3***	0.75	0.17	4.29***
	Anthrax ThreatXTime	-0.72	0.21	-3.4***	-0.71	0.21	-3.32***

Table A.4 – *Continued*

Outcomes	-2 Log Likelihood = 1372.91***						
	Intercept	-1.94	0.46	-4.25***	-1.88	0.46	-4.12***
	Time	1.42	0.09	15.05***	1.4	0.09	14.83***
	Gender	-0.15	0.10	-1.41	-0.17	0.1	-1.68
	Marital Status	0.44	0.10	4.32***	0.45	0.1	4.41***
	Age	0.00	0.00	-0.72	0	0	-0.71
	Education Level	0.03	0.03	0.84	0.03	0.03	0.88
	Y/N Knew any 9/11 Victims	0.21	0.17	1.19	0.2	0.17	1.16
	Y/N Could have Prevented 9/11	0.07	0.10	0.73	0.08	0.1	0.81
	Y/N Could have Prevented Anthrax	-0.07	0.11	-0.63	-0.06	0.11	-0.56
	Accurate Blame/Domestic Terrorist	-0.04	0.09	-0.43	-0.09	0.11	-0.79
	Worry of Mail Exposure	0.46	0.10	4.7***	0.46	0.1	4.63***
	9/11 Threat	-0.01	0.03	-0.22	-0.01	0.03	-0.19
	9/11 Media Exposure	0.02	0.03	0.62	0.01	0.03	0.44
	Anthrax Media Exposure	-0.04	0.04	-1.01	-0.04	0.04	-1
	Anthrax Threat	0.57	0.17	3.31***	0.6	0.18	3.4***
	Anthrax ThreatXTime	-0.67	0.21	-3.26***	-0.67	0.21	-3.23***
	Perceived Stress	0.01	0.01	1.12	0.01	0.01	1.04
	Posttraumatic Stress	0.32	0.15	2.05*	0.34	0.15	2.19*
	Positive Outlook Change	0.01	0.00	2.08*	0.01	0	2.11*
	Negative Outlook Change	0.01	0.01	1.57	0.01	0.01	1.66
Outcomes X Ti	-2 Log Likelihood = 1368.74						
	Intercept	-1.96	0.46	-4.3***	-1.91	0.45	-4.2***
	Time	1.41	0.09	14.93***	1.4	0.09	14.8***
	Gender	-0.14	0.10	-1.38	-0.17	0.1	-1.62
	Marital Status	0.43	0.10	4.26***	0.44	0.1	4.35***
	Age	0.00	0.00	-0.73	0	0	-0.75
	Education Level	0.03	0.03	0.88	0.03	0.03	0.96
	Y/N Knew any 9/11 Victims	0.19	0.17	1.13	0.19	0.17	1.1
	Y/N Could have Prevented 9/11	0.09	0.10	0.87	0.1	0.1	1
	Y/N Could have Prevented Anthrax	-0.08	0.11	-0.72	-0.08	0.11	-0.67
	Accurate Blame/Domestic Terrorist	-0.03	0.09	-0.36	-0.1	0.11	-0.92
	Worry of Mail Exposure	0.48	0.10	4.84***	0.47	0.1	4.77***
	9/11 Threat	-0.01	0.03	-0.25	-0.01	0.03	-0.22
	9/11 Media Exposure	0.02	0.03	0.72	0.01	0.03	0.53
	Anthrax Media Exposure	-0.04	0.04	-1.06	-0.04	0.04	-1
	Anthrax Threat	0.53	0.19	2.79*	0.55	0.19	2.91***
	Anthrax ThreatXTime	-0.62	0.23	-2.63*	-0.62	0.23	-2.64*
	Perceived Stress	0.02	0.01	1.75	0.02	0.01	1.91
	Posttraumatic Stress	0.44	0.24	1.86	0.45	0.24	1.9
	Positive Outlook Change	0.01	0.01	1.54	0.01	0.01	1.35
	Negative Outlook Change	0.00	0.01	-0.22	0	0.01	-0.21
	Perceived Stress X Time	-0.02	0.02	-1.29	-0.03	0.02	-1.61
	Posttraumatic Stress X Time	-0.20	0.31	-0.65	-0.17	0.31	-0.55
	Positive Outlook Change X Time	0.00	0.01	-0.11	0	0.01	0.16
	Negative Outlook Change X Time	0.02	0.01	1.94	0.02	0.01	1.96

Table A.4 – *Continued*

Perceived Safety of Building Entry T2 Only (Including Worry)		*df* = 215			df = 211		
Intercept Only	-2 Log Likelihood = 1650.32						
	Intercept	-0.08	0.77	-0.11	-0.07	0.77	-0.09
Covariates	-2 Log Likelihood = 1632.39**						
	Intercept	-3.03	4.01	-0.76	-3.21	4.02	-0.8
	Gender	-5.12	1.58	-3.25***	-4.86	1.59	-3.05***
	Marital Status	-0.61	1.66	-0.37	-0.52	1.67	-0.31
	Age	0.04	0.05	0.83	0.04	0.05	0.79
	Education Level	0.96	0.55	1.76	0.99	0.55	1.8
Predictors	-2 Log Likelihood = 1562.24***						
	Intercept	17.03	6.00	2.84***	16.84	6.02	2.8*
	Gender	-3.16	1.41	-2.25*	-3	1.41	-2.13*
	Marital Status	0.13	1.45	0.09	0.27	1.47	0.18
	Age	-0.04	0.05	-0.77	-0.04	0.05	-0.77
	Education Level	0.82	0.47	1.75	0.85	0.47	1.79
	Y/N Knew any 9/11 Victims	-0.20	2.31	-0.08	-0.19	2.31	-0.08
	Y/N Could have Prevented 9/11	-0.71	1.45	-0.49	-1.01	1.47	-0.69
	Y/N Could have Prevented Anthrax	1.74	1.55	1.12	1.59	1.56	1.02
	Accurate Blame/Domestic Terrorist	0.79	1.28	0.62	1.33	1.56	0.85
	Worry of Mail Exposure	-8.17	1.21	-6.77***	-7.97	1.21	-6.57***
	9/11 Threat	-1.33	0.43	-3.07***	-1.3	0.43	-3.02***
	9/11 Media Exposure	0.64	0.37	1.71	0.65	0.37	1.75
	Anthrax Media Exposure	-0.43	0.50	-0.85	-0.51	0.5	-1.01
Threat	-2 Log Likelihood = 1554.6**						
	Intercept	11.81	6.18	1.91	10.81	6.16	1.75
	Gender	-3.18	1.38	-2.3*	-2.96	1.38	-2.15*
	Marital Status	0.10	1.43	0.07	0.22	1.44	0.16
	Age	-0.02	0.05	-0.42	-0.02	0.05	-0.33
	Education Level	0.70	0.46	1.5	0.69	0.46	1.49
	Y/N Knew any 9/11 Victims	0.01	2.27	0	0.06	2.26	0.03
	Y/N Could have Prevented 9/11	-0.55	1.43	-0.38	-0.83	1.43	-0.58
	Y/N Could have Prevented Anthrax	1.44	1.53	0.94	1.16	1.53	0.76
	Accurate Blame/Domestic Terrorist	0.80	1.25	0.64	1.27	1.52	0.84
	Worry of Mail Exposure	-6.67	1.30	-5.12***	-6.19	1.31	-4.73***
	9/11 Threat	-1.06	0.44	-2.43*	-0.97	0.43	-2.24*
	9/11 Media Exposure	0.64	0.37	1.76	0.66	0.36	1.82
	Anthrax Media Exposure	-0.33	0.49	-0.68	-0.43	0.49	-0.88
	Anthrax Threat	-4.72	1.69	-2.79*	-5.55	1.72	-3.22***

Table A.4 – *Continued*

Outcomes	-2 Log Likelihood = 1538.5*						
	Intercept	7.95	6.23	1.28	6	6.17	0.97
	Gender	-3.64	1.41	-2.58*	-3.23	1.39	-2.31*
	Marital Status	1.01	1.44	0.7	1.13	1.44	0.78
	Age	-0.01	0.05	-0.19	0	0.05	0.03
	Education Level	0.72	0.46	1.57	0.74	0.45	1.64
	Y/N Knew any 9/11 Victims	-0.32	2.20	-0.14	-0.43	2.17	-0.2
	Y/N Could have Prevented 9/11	0.02	1.42	0.01	-0.3	1.41	-0.21
	Y/N Could have Prevented Anthrax	1.67	1.48	1.13	1.28	1.47	0.87
	Accurate Blame/Domestic Terrorist	0.87	1.22	0.71	1.84	1.47	1.25
	Worry of Mail Exposure	-6.50	1.27	-5.11***	-5.92	1.26	-4.68***
	9/11 Threat	-0.62	0.44	-1.41	-0.45	0.44	-1.03
	9/11 Media Exposure	0.63	0.36	1.75	0.67	0.36	1.88
	Anthrax Media Exposure	-0.20	0.50	-0.4	-0.33	0.5	-0.67
	Anthrax Threat	-1.95	1.82	-1.07	-2.59	1.82	-1.43
	Perceived Stress	-0.01	0.12	-0.12	-0.06	0.12	-0.48
	Posttraumatic Stress	-6.68	2.20	-3.03***	-6.74	2.18	-3.1***
	Positive Outlook Change	0.02	0.05	0.3	0.01	0.05	0.12
	Negative Outlook Change	0.00	0.07	-0.06	0	0.07	0.06
	Micro Worry	-1.09	1.43	-0.77	-1.23	1.42	-0.86
	Macro Worry	-0.48	1.09	-0.44	-0.8	1.09	-0.74
Illness Vigilance T2 Only (Including Worry)			*df* = 213			df = 209	
Intercept Only	-2 Log Likelihood = 566.06						
	Intercept	-0.93	0.06	-14.91***	-0.92	0.06	-14.59***
Covariates	-2 Log Likelihood = 555.53*						
	Intercept	-0.77	0.33	-2.3*	-0.75	0.34	-2.23*
	Gender	0.27	0.13	2.03*	0.27	0.13	2
	Marital Status	-0.33	0.14	-2.38*	-0.31	0.14	-2.23*
	Age	-0.01	0.00	-1.28	-0.01	0	-1.23
	Education Level	0.01	0.05	0.28	0.01	0.05	0.14
Predictors	-2 Log Likelihood = 483.48***						
	Intercept	-2.75	0.50	-5.54***	-2.71	0.5	-5.44***
	Gender	0.10	0.12	0.83	0.1	0.12	0.86
	Marital Status	-0.37	0.12	-3.08***	-0.36	0.12	-2.93***
	Age	0.00	0.00	0.5	0	0	0.62
	Education Level	0.03	0.04	0.72	0.02	0.04	0.54
	Y/N Knew any 9/11 Victims	-0.04	0.19	-0.19	-0.03	0.19	-0.15
	Y/N Could have Prevented 9/11	0.18	0.12	1.53	0.21	0.12	1.68
	Y/N Could have Prevented Anthrax	-0.04	0.13	-0.3	-0.06	0.13	-0.47
	Accurate Blame/Domestic Terrorist	-0.06	0.11	-0.54	-0.09	0.13	-0.72
	Worry of Mail Exposure	0.71	0.10	7.13***	0.71	0.1	7.08***
	9/11 Threat	0.12	0.04	3.31***	0.12	0.04	3.5***
	9/11 Media Exposure	-0.02	0.03	-0.62	-0.02	0.03	-0.71
	Anthrax Media Exposure	-0.01	0.04	-0.23	-0.02	0.04	-0.41

Table A.4 – *Continued*

Threat	-2 Log Likelihood = 450.09***						
	Intercept	-1.88	0.48	-3.91***	-1.85	0.48	-3.83***
	Gender	0.10	0.11	0.92	0.09	0.11	0.86
	Marital Status	-0.36	0.11	-3.3***	-0.35	0.11	-3.11***
	Age	0.00	0.00	-0.26	0	0	-0.2
	Education Level	0.05	0.04	1.34	0.04	0.04	1.18
	Y/N Knew any 9/11 Victims	-0.07	0.18	-0.39	-0.06	0.18	-0.36
	Y/N Could have Prevented 9/11	0.16	0.11	1.4	0.18	0.11	1.59
	Y/N Could have Prevented Anthrax	0.01	0.12	0.12	0	0.12	0.03
	Accurate Blame/Domestic Terrorist	-0.06	0.10	-0.63	-0.09	0.12	-0.74
	Worry of Mail Exposure	0.46	0.10	4.56***	0.45	0.1	4.45***
	9/11 Threat	0.07	0.03	2.13*	0.08	0.03	2.25*
	9/11 Media Exposure	-0.02	0.03	-0.69	-0.02	0.03	-0.78
	Anthrax Media Exposure	-0.03	0.04	-0.66	-0.03	0.04	-0.72
	Anthrax Threat	0.79	0.13	6.01***	0.79	0.13	5.89***
Outcomes	-2 Log Likelihood = 412.75***						
	Intercept	-1.41	0.46	-3.06***	-1.37	0.46	-2.94***
	Gender	0.09	0.10	0.82	0.08	0.1	0.72
	Marital Status	-0.48	0.11	-4.49***	-0.47	0.11	-4.34***
	Age	0.00	0.00	-0.75	0	0	-0.71
	Education Level	0.06	0.03	1.67	0.05	0.03	1.5
	Y/N Knew any 9/11 Victims	-0.02	0.16	-0.15	-0.01	0.16	-0.08
	Y/N Could have Prevented 9/11	0.05	0.11	0.51	0.08	0.11	0.72
	Y/N Could have Prevented Anthrax	0.02	0.11	0.2	0.02	0.11	0.2
	Accurate Blame/Domestic Terrorist	-0.07	0.09	-0.79	-0.15	0.11	-1.32
	Worry of Mail Exposure	0.43	0.09	4.59***	0.41	0.09	4.36***
	9/11 Threat	0.02	0.03	0.57	0.02	0.03	0.58
	9/11 Media Exposure	-0.03	0.03	-1.09	-0.03	0.03	-1.13
	Anthrax Media Exposure	-0.02	0.04	-0.53	-0.02	0.04	-0.52
	Anthrax Threat	0.53	0.13	3.92***	0.54	0.14	3.95***
	Perceived Stress	-0.01	0.01	-0.58	0	0.01	-0.32
	Posttraumatic Stress	0.51	0.16	3.15***	0.53	0.16	3.24***
	Positive Outlook Change	0.01	0.00	1.56	0.01	0	1.44
	Negative Outlook Change	0.00	0.01	0.35	0	0.01	0.23
	Micro Worry	0.29	0.11	2.74*	0.28	0.11	2.66*
	Macro Worry	-0.02	0.08	-0.23	-0.01	0.08	-0.16

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Note: *b* weights represent unstandardized parameter estimates. For gender, female was coded as 0 and male was coded as 1; for Marital Status, 0 was coded as not married or living with a partner, and 1 was coded as married or living with a partner. Values on the left side were produced when using Y/N Accuracte Blame as a predictor, while values on the right side were produced when using Y/N Domestic Terrorist instead as a predictor. Models that included time did not include micro and macro worries, but models that included values from only the second assessment did. For the first set of outcomes, the intercept-only model estimates 2 parameters, the time model estimates 3 parameters, the covariates model estimates 7 parameters, the model including predictors estimates 15 parameters, the model including threat and time estimates 16 parameters, the model which also includes the threatxtime interaction estimates 17 parameters, the model which includes the mental health outcomes estimates 21 parameters, and the model which also includes their interactions with time estimates 25 parameters. Micro and macro worries models do not include time and therefore estimate 2, 6, 14, 15, and 21 parameters, respectively.

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