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Examining the Effects of Exposure and Mediator Variables on Older Adult Reactions to the Events of the September 11th Terrorist Attacks

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Examining the Effects of Exposure and Mediator Variables on Older Adult Reactions to the Events of the September 11th Terrorist Attacks

By

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Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

2006
Abstract

Examining the Effects of Exposure and Mediator Variables on Older Adult Reactions to the Events of the September 11th Terrorist Attacks

The present study examined how specific variables may contribute to greater PTSD related distress responses after September 11th in a sample of 85 community dwelling older adults in the New York Metropolitan area. Data was collected approximately 3 years after the attacks and investigated whether there were lasting distress reactions as a result of variables such as proximity, exposure, coping style, and past trauma experience. Proximity was measured via how far in miles participants lived from the World Trade Center. Exposure was measured based on items participants endorsed on the demographic form including amount of time spent viewing 9/11 related news coverage following the attacks (indirect exposure) and/or responding to items such as knowing someone who was killed/injured in the attacks (direct exposure). Coping style was assessed via the Coping Strategy Indicator (Amir Khan, 1990) and past trauma was measured via the Traumatic Stress Schedule (Norris, 1990). The dependent variable, level of PTSD related distress, was measured by the Impact of Events Scale Revised (Weiss & Marmar, 1997). Results showed 2 significant findings: (a) older adults with a great amount of exposure in combination (direct exposure, more hours of 9/11 related television coverage, and more hours of current news viewing) have higher levels of hyperarousal and intrusion as measured by the IES-R; and (b) older adults who have more of an avoidant coping style, have less PTSD related distress in all three domains (hyperarousal, intrusion, and avoidance) of the IES-R. The paper discusses limitations of the present study such as the amount of time that elapsed between the attacks and when data was collected. Overall,
however, the study is important in understanding the mental health of older adults in relation to terrorism as a specific form of disaster. Implications of the study are further discussed in the paper as well as areas for future research.
I would like to thank the Professional Psychology faculty of Seton Hall University for their guidance throughout my years of academic training. I want to extend my appreciation to all the members of my dissertation committee for their encouragement in this process. I want to thank Dr. Pamela Foley for her support as well as her wisdom in statistical analyses that made completion of this project finally possible. I would like to extend my gratitude to my mentor in particular, Dr. Laura Palmer, who always shared her knowledge and dedication throughout my doctoral training and provided me with countless opportunities to grow and learn both as a woman and as a professional. Dr. Palmer, you are a role model and great source of inspiration.

I would like to thank my family and friends (particularly my brother Andrew and wonderful friend Melissa) for their ideas and ongoing support during my years at Seton Hall. I would like to thank my beautiful parents, Geraldine and Louis, for always being there for me and for their continued faith in my potential. Without their love and wisdom in wanting me to have larger goals than they had, this achievement could never have been possible. I would also like to thank my dear fiancé, Matthew, for his unending encouragement and belief in me. It is with his patience and sense of humor that I was able to make successful decisions and persevere in times of heightened frustration during these past 6 years. Finally, to all the site directors at the various organizations I visited who allowed me to intrude on their space and helped me to problem-solve through the data collection phase as well as the generous individuals who offered their time to participate in the study, I am truly grateful.
Dedication

This dissertation is dedicated to the thousands of men and women of all ages, races, and religions who died needlessly in the tragic attacks on the World Trade Center and Pentagon on September 11th, 2001. It is dedicated to all the relief workers who so effortlessly persisted in the days following the attacks to find survivors and it is for the families and friends of loved ones who perished who suffered such tremendous loss. Further, it is dedicated to those who were able to escape that day and may still carry emotional scars. May you all be able to heal and find peace in some way in the future. Lastly, it is dedicated to the great city of New York, my home.
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Chapter I

Introduction

Introduction to the Study

The terrorist attacks of September 11, 2001 have been recorded as the deadliest terrorist attacks in United States history (Schlenger et al., 2002). To date, there is an abundance of literature that examines the effects of natural and man-made disasters on general well-being and a rapidly growing body of research that examines the effects of September 11th in particular. Of the studies conducted on September 11th thus far, many have focused on the impact of the attacks on either children or young and middle age adults. In addition, many studies examined the effects of September 11th in the immediate weeks and months after the disaster. It is a well-known fact within the social sciences that older adults are living longer to a point where they have become the fastest growing age cohort in the United States. It is also known that older adults experience certain levels of distress and anxiety while at the same time underutilize mental health services. A review of the trauma literature indicates two points that are relevant to the current study: (1) a disaster can continue to have a negative impact on an individual's mental health for many years after its occurrence and (2) certain variables such as proximity, level of exposure, social support, coping, current stressors, and past trauma history have been shown to influence the impact that the event has on an individual. Given this, the purpose of this study is to expand on the limited research that exists on September 11th and older adults. The study aims to investigate in particular the variables that put an older adult at greater
risk for experiencing distress. The significance of this research as well as the specific variables, hypotheses, and limitations are all further explored.

Overview of September 11th, 2001 Terrorist Attacks

On the morning of September 11th, 2001, the United States became the target of the most massive terrorist attack in U.S. history. Within minutes, four domestic flights were hijacked and used as weapons in a destructive plot to attack the United States. At 8:46 a.m., American Airlines Flight 11, which held 92 passengers and crew, was flown into the 94th floor of the North Tower of the World Trade Center in New York City. A few minutes later at 9:03 a.m., a second hijacked plane with 65 people on board, United Airlines Flight 175, was driven into the 86th floor of the World Trade Center's South Tower. At 9:40 a.m., hijacked American Airlines Flight 77 and its 64 passengers, plunged into the northwest wall of the Pentagon, in Arlington, Virginia, creating a hole 65 yards wide. Another plane, hijacked and headed for Washington DC with the White House as the probable target. United Airlines Flight 93, crashed in Pennsylvania as a result of a rebellion by passengers, killing all 45 passengers that were on board (Pyszczynski, Solomon, & Greenberg, 2003).

By 10:30 a.m., both the North and South Towers of the World Trade Center collapsed to 1,642,698 tons of rubble and ashes, and the area surrounding the Pentagon was ablaze in fire and smoke. Orchestrated by the radical Islamic group, Al Qaeda, the suicidal attacks on the U.S. Pentagon and World Trade Center that took place on this solemn day changed the country irrevocably. Recorded as the deadliest terrorist attack in U.S. history (Stein, 2001), the attack left over 2,600 individuals dead and 3,750 victims injured in New York alone (National Commission on Terrorist Attacks Upon the United
States, 2004). This is not including 125 deaths at the Pentagon. September 11th was also reported as the largest acute environmental attack waged on America. There was a total of 90,000 liters of jet fuel that combusted in the air at temperatures above 1,000 degrees Celsius and dust clouds that contained hundreds of thousands of tons of pulverized cement, glass, and asbestos (“Four Groups of New Yorkers.” 2003). The tragedy on September 11th erased America’s primary symbols of economic and military power and strength and left a nation in disbelief and terror.

In the hours after the attacks, an entire country became paralyzed. More than 3,500 commercial airline flights were grounded, and workplaces and schools were shutdown. In relation to New York City, lower Manhattan residents were asked to evacuate their homes and walk across bridges to other boroughs. The New York Transit subway system was halted, and water crossings within the tri-state region were closed all day to traffic. Within hours, streets were destroyed, companies and businesses vanished, and individuals were glued to their televisions in search of an answer.

_Prior Terrorist Attacks on America_

Although the United States has been under siege by terrorist attacks over the last decade, there have been no attacks on U.S. soil to date that are of comparable magnitude to the events that unfolded on September 11th. A previous attempt was made to obliterate the World Trade Center on the morning of February 26, 1993, by a group of Middle Eastern terrorists who bombed a parking garage behind the World Trade Center. However, the attack was far less devastating, killing six and injuring approximately one thousand people (Ofman & Mastria, 1995). Other than destruction of part of the towers’ facade, the explosion did not damage the extended lower Manhattan vicinity.
Prior to September 11th, 2001, the deadliest terrorist act to take place in the U.S. was the bombing of the Alfred P. Murrah Federal Building in Oklahoma City on April 19th, 1995. This disaster, committed by two right-wing radicals, killed 168 people, including 19 infants and children and left more than 700 people with severe injuries (Krug et al., 1996; Tucker & Pfefferbaum, 2000). The blast was so devastating that it destroyed windows in office buildings and homes up to 30 miles away and was felt over 15 miles away (Sprang, 1999). Although the bombing was devastating to the residents of Oklahoma City and the country at large, there was some sense of solace that the attack was conducted by discontent Americans rather than an organization of foreign terrorists (Pyszczynski et al., 2003).

**Terrorism as a Man Made Disaster**

In order to conduct research in this area, it is critical to objectively define what a disaster is. According to Bravo, Rubio-Stipec, and Canino (1990), disasters take on extreme characteristics that differentiate them from other types of stressors. "Major disasters have characteristics that make them strong stressors: they are of disruptive nature, produce senses of terror and horror, usually occur unexpectedly, undesirably, and uncontrollably, and have a prolonged duration because of the social and material disruption they usually cause" (p. 49). The attacks that occurred on September 11th included all of these variables, thus making the September 11th attacks largely appropriate to be considered a disaster.

Many researchers go further to make the distinction between natural and man-made disasters (Beigel & Beren, 1985; Ofman & Mastria, 1995; Wilkinson, 1985). Natural disasters, as described by Wilkinson (1985), are those that occur in the absence of
deliberate intent. Natural disasters such as floods, earthquakes, hurricanes, fires, and the like generally have an identifiable low-point, after which the worst has concluded and a recovery phase can begin (Ofman & Mastria, 1995). Man-made disasters, on the contrary, are grounded in deliberate intent or caused by human error and create a continuing sense of uncertainty in terms of when the events began and when they will eventually end. Thus, there is no recognizable low-point in which individuals can begin recovery (Boliz, 1986; Ofman & Mastria, 1995). Beigel and Berren (1985) categorize man-made or human-induced disasters further into two different types: acts of omission and acts of commission. Acts of omission are disasters that are the result of negligence such as the technological disasters of Three Mile Island or the Exxon Valdez Oil Spill. Acts of commission, on the contrary, are purposeful, directed, and violent. Terrorism can be placed into this latter category.

Prevalence of Terrorism

Acts of violence have been present worldwide since the beginning of time. Pyszczynski et al. (2003) discuss the ethnic cleanings that took place from as early as 1200 BC to Hitler’s genocide of Jews during WWII and the more recent extermination of 1 million of the Tutsi population of Rwanda in 1994. In addition to the aforementioned acts is the current violence occurring in the Darfur region of the Western Sudan between the Janjaweed and non-Arab people of the region. The conflict between these groups has resulted in over 300,000 deaths and has left approximately 1.8 million individuals displaced from their homes (“Darfur conflict”, n.d.). Terrorism is one type of violence that has been occurring globally for centuries. It is a problem that affects the daily lives of individuals in several countries such as Israel, Egypt, Ireland, England, Algeria, Spain,
and recently the United States (Gidron, 2002). In Israel, acts of terror have been relentless (Dertdevy, Gal, & Ayalen, 1996): bombings on buses, in marketplaces, and on city streets, as well as seizures of adolescents in schools, by Palestinians, have been unprecedented. Other incidents such as the bombings of the American embassies in Kenya and Tanzania in 1998 (Crenshaw, 2000), the 1996 bombing of Olympic Park in Atlanta during the Olympic games, the 1988 explosion of the Pan-Am Flight 103 over Lockerbie, Scotland, and the 1994 shooting of a van of Hasidic Jewish college students over the Brooklyn Bridge have become more real to us as they involved a domestic component, the attack of American citizens.

Terrorism, unlike other types of disasters, is described as being psychological in nature. According to Jacobs and Kulkarni (1999), "These disasters are intentional and have the purpose of intimidation and coercion, as well as the goal of inducing a sense of helplessness and chaos among those targeted" (p. 376). Further, in the case of terrorism, the randomness of the threat and the perceived uncontrollability immensely enhance its impact (Friedland & Merari, 1985). Friedland and Merari note that although the risk one has of getting harmed while driving a vehicle might be far greater than the danger of terrorism, a car driver generally feels more comforted by a subjective feeling of control which the victim of terrorism lacks. Thus, the literature (Gidron, 2002) indicates that the most prominent characteristics of terrorist acts are that they are intentional and further, that they eliminate a sense of safety in what was formerly safe for individuals. This issue of safety is central to the understanding of psychological responses to terrorist attacks in comparison to responses to other types of disasters.
Psychological Sequelae of Terrorism

There are a host of responses that arise after one has experienced a disaster in general. In regard to acts of terrorism more specifically, and the events of September 11th in particular, it is not uncommon for individuals to develop extreme stress responses. There is consistency in the literature (Jacobs & Kalkani, 1999; Schuster et al., 2001) that the fear that results from terrorist attacks may be persistent. The sense of vulnerability that results from terrorism lends an individual at much higher risk for traumatic stress in the acute period following the event than other types of disasters, and poses a large risk for severe stress reactions in the long term. Research has (Frederick, 1980) has discussed the differences in symptom constellation following disasters that are human made compared with those that are the result of natural phenomena, with the former being longer lasting and more severe. It has also been noted (Scurfield, 2002) that individuals can be markedly affected by witnessing a trauma or through the indirect impact of trauma as it is experienced by others.

Post-traumatic stress disorder (PTSD) is one type of anxiety disorder that has been directly associated with exposure to trauma and the experience of terrorist acts. The American Psychiatric Association defines Post-traumatic stress disorder as follows:

"An anxiety disorder observed in persons who have been exposed to an extreme stressor that evokes feelings of intense fear, helplessness, or horror" (American Psychiatric Association, 1994)

PTSD is defined by the coexistence of three domains of symptoms: re-experiencing (which includes an overwhelming sense of reliving the event), avoidance (withdrawing
from stimuli associated with the trauma or diminished interest in other stimuli that may have been pleasurable), and hyperarousal (which may manifest as insomnia, anger, difficulty concentrating, hypervigilance, and an increased startle response). To meet full criteria for this diagnosis, symptoms must be present for at least one month (American Psychiatric Association, 1994).

**PTSD and Terrorist Acts:**

A review of the literature provides extensive support for the negative impact that terrorist attacks have on psychological functioning and on the development of PTSD. Curran, Bell, Loughery, Roddy, and Rocke (1990) studied the effects of the Enniskillen bombing in Northern Ireland, which killed 11 people and injured 60, and found that among 26 survivors surveyed, 50% had a diagnosis of PTSD 6 months after the exposure to the trauma. Shalev (1992) has focused attention on the terrorist acts in Israel that have prevailed in recent years. Shalev examined the psychological effects of a terrorist induced bus crash in Israel 10 months after the incident and found that 33% of the 12 survivors surveyed had DSM-IV diagnosable PTSD.

Factors that have been found to increase the risk of development of PTSD after a traumatic event include the degree of exposure to the event (Yeuda, 2002), the level of fear/vulnerability experienced during the event, and severity of injury (Abenhaim, 1992; Tucker & Pfefferbaum, 2000). Other research has looked at risk factors such as premorbid functioning (Phifer & Norris, 1989), current amounts of stress in one's life, current health status, poor social support (Bofa & Klenow, 1982), personality, prior experience of or exposure to trauma, and the mass deaths that were incurred as a result of the disaster. Women have also been documented in the literature (Breslau et al., 1998;
1999; Weintraub & Ruskin, 1999) as being more at risk for the development of PTSD as well as those who are unable to gain a sense of control in terms of making meaning of the event (Lyons, 1991).

Psychological Responses to September 11th

Upon realization that the tragic events of September 11th were deliberate and carefully coordinated by terrorists, Americans were left with a fear of what was next to come. The continuous news chronicles on the attacks in the immediate moments, days, and weeks that followed September 11th created a nationwide threat to security that has been unparalleled in U.S. history thus far (Pyszczynski et al., 2003).

The replays of the planes crashing into the towers, the smoldering Pentagon, and the gruesomely vivid media images of the towers imploding on themselves, of people jumping to their deaths and running for their lives in horror amidst the surrounding destruction, began to serve as salient indicators of a culture that lost its sense of predictability (Pyszczynski et al., 2003). A few weeks subsequent to the attacks, envelopes that contained anthrax spores were mailed to governmental and media agencies, leaving 18 individuals who contracted the virus and five who died (Salerno & Nagy, 2002). Those scares, together with the ongoing threats of biological and chemical attacks, led to a heightened vulnerability in individuals that has never been experienced to this degree before (Huddy, et al., 2002; Pyszczynski et al., 2003). In fact, according to a Gallup poll conducted on the day of the attack, 58% of Americans reported being somewhat or very worried that they or a member of their immediate family would become the victim of a future terrorist attack (Huddy, Feldman, Capelos, & Provost, 2002). Although the fear experienced by Americans declined over time, when surveyed
in November 2001, 40% of all Americans believed that they or a family member could be the victim of a future terrorist attack, and 74% said they believed such an attack was quite likely in the near future (Pyszczynski et al., 2003). These aforementioned figures serve to demonstrate the state of worry that relected nationwide.

**Terror Management Theory**

One way of understanding reactions to large-scale disasters and atrocities such as September 11th is through Terror Management Theory. This theory posits the following:

The uniquely human awareness of death, when juxtaposed with the natural inclination toward self preservation common to all life, renders human beings prone to potentially overwhelming terror that is managed by the construction and maintenance of culture. Culture provides opportunities for individuals to perceive themselves as persons of value in a world of meaning and in so doing, derive security in this world and symbolic or literal immortality in the next (Pyszczynski et al., 2003, p. 5i)

In other words, terror management theory asserts that individuals can manage terror by trying to place meaning on the events as well as on oneself as a member of a society. What is particularly challenging about September 11th is that the cultural icons that typically generate a sense of value and meaning for us such as the Pentagon and the World Trade Center, or more largely, Washington, DC and New York City, have been damaged. The loss of these icons, therefore, makes it even more challenging for individuals to find meaning in the world.

Individuals have engaged in a number of different mechanisms to come to terms with the terror of September 11th as presumed by terror management theory. Individuals
have attempted to find explanations for themselves through the following means: taking instrumental actions to minimize danger, willingness to sacrifice personal freedom, taking refuge in distractions such as watching television and shopping, heightened patriotism, and altruistic activities (Pyszczynski et al., 2003). Many individuals have been able to cope with the 9/11 attacks through positive engagement in the activities aforementioned. Others, however, have experienced more distress in their daily lives.

**Older Adults and PTSD**

Although PTSD literature has been in abundance in recent years since its entry into the DSM-IV and ultimately DSM-IV-TR, there is a paucity of research that examines PTSD in regard to elderly individuals. Most of the trauma literature in regard to older adults has focused primarily on Vietnam and World War II veterans (Kulka et al., 1990) as they enter their elder years as well as Holocaust Survivors (Kahana, Kahana, Harel, & Rosner, 1984). Some other studies that examine the effects of natural disasters have included older adults in their samples. However, the findings have been equivocal. The studies that have investigated trauma in older adults have yielded inconsistent findings in regard to whether or not this population is more vulnerable to the development of PTSD. Some studies (Solomon & Prager, 1992) have shown poor stress and coping reactions to trauma among older adults, whereas other studies (Bell, 1978; Bolin & Klenow, 1982; Goenjian, Najarian et al., 1994; Huerta & Horton, 1978) indicate that older adults fare just as well or even better than younger adults in recovery from trauma.

The data in regard to disasters, more specifically, is even scarcer. Earlier studies (Friedsam, 1962) seemed to report negative consequences among the elderly following disasters. Studies conducted over the past two decades, however, following natural
disasters among the elderly demonstrate that the elderly in general have fewer anxiety symptoms than younger persons after a flood, tornado, or fire. Further, it has been noted (Averill & Beck, 2000) that anxiety-type disorders generally appear to decline in individuals 65 and older. The literature discusses a "generativity filter" in which mastery over previous disasters or negative events lends to a protective factor (Averill & Beck, 2000; Fields, 1996) and less feelings of helplessness when faced with new crises (Elder & Clipp, 1989). When PTSD does appear in older adults, the symptom patterns may be different than the patterns found in younger adults samples. Overall, it has been found that there are less intrusive memories (Goenjian et al., 1994; McFarlane, 1988) but more hypervigilance and avoidance (McFarlane, 1988; Van der Kolk & McFarlane, 1996) in older adults as compared with younger adults.

The Role of Social Support

There has been much confusion in recent years regarding the definition and measurement of social support (Jackson & Antonucci, 1992) with social support being a multifaceted concept. In general, social support has been described as "the functions that are performed for the individual by significant others, such as family members, friends, and coworkers" (p. 64). Literature on social support (Rook, 1987), breaks these functions down further into three categories: instrumental assistance, affective or emotional support, and the provision of information. The degree to which individuals have social relationships with others or feel supported has long been documented to be a mediating factor for individuals, and the elderly in particular, in reactions to stress and trauma (Bolin & Klenow, 1982; Lyons, 1991). Studies have provided evidence for the positive role of social support in morbidity and mortality (Cobb, 1976) as well as the role of
supportive relationships on emotional health (Blazer, 1982). The literature has noted the importance, however, of distinguishing between types of support, the sources of support, quality versus quantity of support, the perceptions of available support, and the recipient’s assessment of the support. Of these variables, Norris and Kaniasty (1996) assert the main components of social support to be received versus perceived support. According to these researchers, received support is support in which helping behaviors are being provided naturally. Perceived support, on the other hand, refers to the belief individuals have that such helping behaviors would be provided when needed.

Social support has been found to serve as a buffer against stressful and adverse events experienced by individuals of all ages (Cohen & Wills, 1985). With regard to the elderly, it would seem logical that social support is even more salient to psychological well-being and health. As individuals age, they are faced with the challenges of loss: loss of a spouse, siblings, other family members, friends, work, and mobility which may limit the amount of activities an individual participates in and serve to isolate the individual. Based on the aforementioned discussion on trauma and the importance of making meaning out of the stressful events, it may be important for older adults to have interaction with others in processing and making sense of the chaos that has been experienced. Elderly individuals lacking this support may fare worse in regard to the distress experienced.

There is some evidence (Thoits, 1982), however, that certain types of social support can produce negative psychological effects for the individual. These studies have indicated that obligatory social ties such as those for a spouse, parent, relative, or worker can generate stressful demands that may over-ride the more positive effects. Thus, in
recent years, the research has noted the more powerful influence of perceived support in promoting psychological health and mediating the effects of stress (Norris & Kaniasty, 1996) rather than received support.

Coping

As discussed by Kocijan-Hercigonja, Bijavec, Marusic, & Hercigonja (1998), coping is defined as follows, “a person’s constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person’s resources” (p. 1). Lazarus and Folkman (1984) distinguished between coping that is directed towards managing or altering the stressor (problem oriented coping) and coping that is directed toward regulating the emotional response to the stressor (emotion focused coping). According to Lazarus and Folkman (1984), problem focused is most effective when the situation that acted as a stressor is seen as changeable. Emotion focused coping, on the contrary, is used most effectively when the individual’s appraisal of the situation is that nothing could be changed. There is much support (Folkman & Lazarus, 1985) for the idea that coping usually includes both problem solving and emotional regulation rather than a third type of coping that has been identified as avoidance.

Significance of Current Study

The rationale for this study stems from the profound impact this catastrophe continues to have on American individuals to the present date. Almost 5 years after the September 11th attacks, this new day of infamy remains a center of attention for Americans, and New Yorkers in particular, who experienced the destruction in their own backyard. As coverage of the war on Iraq spreads daily throughout news programs, and
other media channels, Americans may be reminded of the terrible images of carnage that ransaged through New York and the Pentagon on that date. At the time of data collection, there appeared to be almost daily accounts of soldiers dying in Iraq, which left Americans struggling for answers. Marking the anniversaries of September 11th that have passed and major U.S. holidays and gatherings such as the 4th of July and New Year’s Eve, Americans continue to be living in a state of terror. In the initial days and months after the attacks, individuals were buying gas masks, stocking their homes with duct tape and water, and being asked for identification to proceed into hospitals, schools, and other buildings that could be targets of a bombing. Almost 5 years post 9/11, the focus has shifted to the trial of Zacarias Moussaoui and coverage about plans for a memorial where the towers once stood. Overall, since September 11th Americans have been faced with the reality of terrorism as indicated by the presence of the National Guard and other uniform officials at major landmarks and sometimes delays and difficulties due to the checkpoints at airports and on highways, bridges, and tunnels.

It is important to acknowledge the mental health of older adults, considering the vast growth of the elderly population in our society and the numbers of elders who reside in New York City alone. Individuals aged 65 and older are currently the fastest growing demographic group, with percentages of older adults having more than tripled since 1900. The proportion of people 65 years and older is almost 13% of the U.S. population and by the year 2030, it will rise to 20% (U.S. Bureau of the Census, n.d.). New York City and lower Manhattan, in particular, is home to many older adults who immigrated to the U.S. during their youth and have aged in place. Approximately 6300 residents aged 65 and older live within a short radius of the World Trade Center and at least three times that
number fire in other neighborhoods of lower Manhattan that had been affected by the destruction (Salerno & Nagy, 2002). This is not to mention the numbers of adults 65 and older who worked in the World Trade Center, some of who survived. Many of these individuals may have been forced to run for safety, displaced from their homes, or had major disruptions to their daily activities such as involvement in senior centers, work, or volunteer work due to the destruction of the lower Manhattan vicinity and the ashes and debris that surrounded Ground Zero.

Although there is a vast body of literature that indicates that PTSD symptoms decrease over time (Epstein, Fullerton, & Ursano, 1998; North, Smith, & Spitznagel, 1997), other studies (Grace, Green, Lindy, & Leonard, 1993; Phifer & Norris, 1989) indicate that PTSD symptoms could prevail years after the initial exposure to trauma. In a landmark study of the psychological impact of the Buffalo Creek Disaster (Grace et al., 1993) in which the Buffalo Creek dam in Logan County, West Virginia collapsed, flooding the valley below and killing 125 people, it was found that PTSD symptoms persisted as long as 14 years after the initial exposure to the disaster. In studies of World War II veterans, findings show that PTSD symptoms can be present 40 to 50 years after the war. Further, evidence suggests the fact that the more severe the trauma, the more the negative effects endure (Phifer & Norris, 1989). The September 11th attacks have been categorized as severe in the fact that they killed a mass number of individuals in one single event, included large scale damage to lower Manhattan homes and businesses, led to property loss and loss of jobs, and brought individuals to a place in time where fear is now a part of daily life.
There have been no studies to date that examine traumatic stress responses among older adults in particular to domestic events as disastrous as those of September 11th. A number of studies have researched the psychological sequelae of the 1995 Oklahoma City Bombing. However, the events differ in regard to many aspects, making findings difficult to generalize. In comparison to the Oklahoma City bombing, the 9/11 attacks were much deadlier in terms of the number of casualties and deliberate in regard to the meticulous orchestration of terror by foreigners. The September 11th attacks can be further differentiated from the Oklahoma City bombing in the following ways: they occurred in more than one geographical area, were viewed as an attack on America in general, and they were accompanied by future threats of terrorism and war. Moreover, unlike any disaster in history, individuals have been immersed in the media coverage and impending terrorism.

Goals for the Current Study

Of the research on 9/11 that has been conducted thus far, the majority of studies (Schlenker et al., 2002; Schuster et al., 2001) investigate the psychological effects of individuals and stress reactions in the immediate aftermath of the events. Furthermore, much emphasis has been given to the psychological consequences on children and adolescents (Dechant et al., 2002; Swick et al., 2002). There are few studies that examine the more long-term effects of September 11th and no studies that focus exclusively on older adults. By examining the psychological impact of September 11th almost 3 years later, it may be possible to gain insight into why some individuals have been able to cope effectively where as others have been more adversely affected. Moreover, it will be important to determine what types of individuals may be in need of mental health
services or other types of interventions. In addition to these factors, this research may provide an in-depth understanding of the effects of terrorism as a specific type of disaster as well as help to resolve conflicting findings regarding whether PTSD symptoms decline over time and whether social support acts to mediate the effects of such stress.

Examining the effects of September 11th on older adults is particularly important, as studies of the impact of disasters on older adults have been equivocal. As aforementioned, older adults are living longer and are expected to be the fastest growing cohort of the total U.S. population. Due to the number of medical illnesses that are typically present in older adults, psychiatric diagnoses sometimes go undiagnosed as symptoms are masked as part of the medical condition (Averill & Beck, 2000). It has also been found that older adults underutilize mental health services due to the stigma attached to mental health and unavailability of services due to poor mobility, problems with insurance, and similar issues (Salerno & Nagy, 2002). Two other factors are significant in regard to the mental health of older adults. For one, there are many older adults who are living alone. Although the majority of individuals aged 65-74 are married and living with a spouse, among those aged 85 years and older, approximately 48% live alone. Women may be at greater risk of living alone, due to the fact that half of the women over the age of 65 are widows and that they are less likely than men to enter into another relationship or re-marry. A second factor is that in regard to television viewing, this age group has been documented to watch the largest number of hours of television daily (Salerno & Nagy, 2002). It is possible then that they may have had substantial indirect exposure to the attacks, a factor that has been found in the literature (Kinzie, Boehnlein, Riley, & Sparr, 2002; Schuster et al., 2001; Scurfield, 2002) to contribute to
extreme stress reactions. Thus, this research will be significant in targeting those older adults who are most vulnerable and subsequently offering suggestions to them in terms of resources or programs available.

**Research Questions**

Given this, the current study raises the following questions:

1. Are older adults who lived in closer proximity to the World Trade Center attacks, had direct exposure to the attacks, have higher levels of a past trauma history, and less perceived social support more likely to have higher scores on a PTSD related distress scale?

2. Are older adults who were directly exposed to the attacks, viewed more hours of 9/11 television coverage, and currently watch more hours of new programming more likely to have higher scores on a PTSD related distress scale than those who do not have as much exposure?

3. Irrespective of whether they live with someone, are older adults who have higher levels of perceived social support more likely to exhibit lower scores on a PTSD related distress scale?

4. Irrespective of past trauma history, are older adults with a seeking support and problem solving coping style rather than an avoidance coping style more likely to have lower scores on a PTSD related distress scale?

**Research Hypotheses**

A review of the literature indicates that there are several risk factors that make an individual more prone to develop PTSD or distress reactions after experiencing a traumatic event. These factors include the following: proximity to the event, greater
amounts of exposure, a lower number of current stressors in one’s life, pre-morbid functioning, coping style immediately following the event, past experiences of trauma that have not been properly worked through, being a female, and having less social support. Based on some of these findings from the literature, the following hypotheses have been formulated:

1. Older adults who lived in closer proximity to the attacks, were directly exposed to the attacks, have higher levels of a past trauma history, and have less perceived social support will demonstrate higher total mean scores on all subscales of the Impact of Events Scale - Revised (IES-R; Weiss & Marmar, 1997).

2. Older adults who had direct exposure, viewed more hours of 9/11 related television coverage, and are currently viewing more hours of television coverage, will demonstrate higher total mean scores on all subscales of the Impact of Events Scale Revised.

3. Once the amount of perceived social support is controlled for based on total scores on the Multidimensional Scale of Perceived Social Support (MSPSS, Zimet, Dahlem, Zimet, & Farley, 1988), there will be no difference in subscale mean scores on the IES-R if an individual lives with someone.

4. Once past trauma is controlled for, individuals who have higher scores on the Seeking support and Problem solving subscales of the Coping Strategy Indicator (CSI; Amirkhan, 1990) will have lower IES-R subscale scores than those with higher scores on the Avoidance subscale of the CSI.
Definition of Terms

Older Adults

Older adults in this study are defined as individuals ages 65 and over. Although the literature categorizes this population of individuals even further into the young old (65-74), middle old (75-84), and oldest old (85 and older), this study will not make those specific distinctions. It is also important to note that the terms older adults and elderly are used interchangeably throughout this study.

Disaster

As aforementioned, disasters have been defined in the literature (Bravo, et al., 1990) as stressors that are “disruptive in nature, produce senses of terror and horror, usually occur unexpectedly, undesirably, and uncontrollably, and have a prolonged duration because of the social and material disruption they usually cause” (p. 40). Norris et al. (2002) also add that disasters affect many people simultaneously and include bereavement, exposure to the dead and dying, and a threat to one’s physical integrity. There are two main types of disasters referred to in the literature: man-made and natural. There are also technological disasters such as the Three Mile Island disaster and the Exxon Valdez oil spill disaster that may not fall neatly into either of these specific categories. Technological disasters may lack the premeditated nature of man-made or human induced disasters. However, they are often caused by human error, which makes them different from natural disasters such as floods, tornados, hurricanes, and the like. The events of September 11th and the destruction of the World Trade Center are discussed in this study as a man-made disaster.
Traumatic Event

According to the American Psychiatric Association (1994), a traumatic event is described as one that is both outside of the range of usual human experience and would be distressing to almost anyone. Breslau and Davis (1987) have developed alternative definitions that include the condition of whether the event is shocking to the individual. Norris (1990) proposed a more restrictive definition of traumatic events as the population of events involving the following: "violent encounters with nature, technology, or humankind". A violent event was then defined as follows: "one that is marked by sudden or extreme force and involves an external agent." All of these definitions are appropriate to a discussion of the events of September 11th.

Prior Trauma Experience

Prior trauma can be defined as one or more negative life experiences that meet criteria for a traumatic event that have happened to an individual in the past. Some studies (Sprang, 1999) have excluded individuals from participating in the research if the experience of the traumatic event occurred within the last 5 years. Considering that the traumatic event under investigation occurred approximately 3 years from the time of initial data collection, the researcher initially wanted to pay attention to events that have occurred to subjects within the last 3 years and control for this when running statistical analyses. However, almost all the past trauma experiences endorsed by individuals occurred prior to 2001 (except for 6 cases). Therefore, individuals with trauma after 2001 were not excluded from the study and all analyses were run together. The types of past trauma that were examined include experiences of some of the following: motor vehicle accidents, personal physical and/or sexual assault, war, natural disasters, robbery, death
of a close friend, spouse, or relative, and the like. The demographics form will also include general questions that ask individuals to indicate if they have served in combat and/or if they are a Holocaust survivor.

**Direct Exposure**

Direct exposure in the current study refers to the following descriptors that have been documented in the literature (Schlenger et al., 2002): having been at or near the crash site on September 11th, having seen Ground Zero in person after September 11th, physically having been able to see or smell smoke coming from the crash site on September 11th or in following days, and having known anyone who was injured or killed as a result of the attacks.

**Indirect Exposure**

Indirect exposure in the current study refers primarily to television viewing of September 11th related material. Based on findings from previous studies (Schuster et al., 2001), television viewing is being assessed in the following ways: by asking individuals to estimate the average number of hours they spent watching TV coverage of the attacks on September 11th and the days that followed and asking them to identify approximately how often they viewed a set of graphic images that are provided on the demographics questionnaire.

**Social Support**

Although there are multiple dimensions of social support that can be measured, this study examines perceived emotional support (i.e., beliefs that significant others are available to offer love and caring, sympathy and understanding, and/or esteem when
needed) and received support in terms of whether or not someone has an intimate/ supportive confidant or partner.
Chapter II

Review of the Relevant Literature and Theoretical Foundation

The Course of PTSD in the General Population

Much of the literature outlining the course of PTSD focuses on the general adult population in comparison to elderly individuals in particular. Of the general literature base, it has been documented (Hyer & Soholıe, 2001) that individuals who express symptoms of PTSD after a traumatic event do not necessarily go on to develop chronic PTSD. In other words, there is a tendency to recover from the acute response to trauma over time, even as early as 3 to 5 months after the traumatic event. Hyer and Soholıe note that, in general, only 10%-25% of those initially meeting diagnostic criteria for PTSD will continue to experience prolonged PTSD. Studies of PTSD show recovery rates of 42% (Feinstein & Dolan, 1991), 66% (Blanchard, Hickling, & Barton, 1996) for individuals involved in motor vehicle accidents, and 58% for Israeli veterans (Solomon, 1989). In studies of women who have been raped, Fea, Rothbaum, Riggs, and Murdoc (1991) found a 94% prevalence of PTSD one week after the event. However, over time, this rate declined to 52.4% after 2 months, and 47.1% nine months later. Thus, although the prevalence is still moderately high, findings indicate an overall decline in PTSD rates over the course of time. It has been noted that many individuals directly involved in catastrophic events do not develop diagnosable psychiatric illness. Rather, the majority of these individuals report experiences such as sleep disturbance, loss of concentration, or
feeling emotionally upset afterwards (Rubonis & Bickman, 1991). This symptom trajectory has been true of older adults as well.

**Trajectory of PTSD in the Elderly**

There is a minimal amount of research to date that explores the effects of recent trauma on elderly individuals. Of the studies on recent trauma that have been conducted, findings have been inconsistent. Earlier studies have shown that elderly individuals are more vulnerable to developing PTSD purely as a result of age than younger individuals. Friedsam (1962), for instance, noted that elderly individuals had poorer outcomes in response to natural disasters, which included distorted perceptions of their circumstances, a tendency to underutilize available resources, and an increased risk of death due to the immediate stress placed upon them. Some recent studies as well have found elders to be at an increased risk in regard to their experience of trauma and disasters.

The majority of studies, however, have failed to support the claim that older adults experience more psychological distress in response to trauma. Mayou, Bryant, & Dethie (1993) examined 188 road accident survivors aged 18-70 and found no significant differences in stress reactions between young and old age groups. Similar findings have been reported by Livingston, Livingston, & Brooks (1992), in a study assessing the psychological impact of the Pan-Am, Flight 103 disaster over Lockerbie, Scotland. In this study, it was found that elderly individuals had a similar response to the younger individuals surveyed as assessed on *DSM-III-R* criteria for PTSD. Further, Miller et al. (1981) assessed specific symptoms of PTSD in groups of older adults and younger adults 1 year following the 1976 Big Thompson flood in Colorado and found no significant differences between groups in the degree of loss sustained or in overall psychiatric
symptomatology. Also, Shore et al. (1986) examined responses to the Mt. St. Helens eruption and subsequent flooding in the southwest Washington State. Subjects in this study included 1,925 adults between the ages of 18 and 79. Of the population sampled, there were 138 believed by the researchers to have high exposure as determined by variables such as property damage and death of a family member or close friend. Regardless of exposure, the most vulnerable group in terms of development of PTSD symptoms was the 15-44 year old group. Elder and Clipp (1989) claim that preincubid level of psychological functioning and severity of the trauma are more important predictors of symptomology than age.

Other studies have shown diverse symptom patterns of PTSD in the two groups. In a study conducted by Gonenjian et al. (1994), the elderly were compared with younger adults 18 months after the 1988 earthquake in Armenia. Results indicated that elderly individuals scored higher on arousal symptoms of PTSD criteria than intrusive symptoms. In regard to older adults, Wilson, Harel & Kahana (1989) evaluated 250 survivors of Pearl Harbor and on the contrary found that 65% of those surveyed reported intrusive imagery. These researchers also found that 42% described survivor guilt, and nearly 1.4% described startle responses to loud noises.

To date there is not strong evidence that age causes a diminished capacity to react to stress. Rather, a large body of research exists indicating that older people fare well in response to trauma. Using longitudinal data from the 1994 Northridge earthquake in California, Knight, Gatz, & Hefer (1999) reported that older groups had lower rates of depression. According to Hyer and Sohle (2001), in general, elderly people appear to be at low risk in regard to disasters. According to these authors, this is because older persons...
may have reduced burdens in terms of caring for others, generally fewer worries, and more time to devote to dealing with the meaning and resolution of the event. Although older adults experience more loss than their younger counterparts, studies on major life events show that the elderly have fewer life events occurring at their stage of development. Of the potentially stressful events that tend to occur in older age such as retirement, children leaving home, death or separation from relatives and/or friends, and declining health, none have been found to increase one’s risk for chronic PTSD. Other researchers have shown, however, that the prevalence of a major stressor appears to be higher in older adults. Ensel (1991) showed that 74% of community dwelling older adults had at least one major life event during the past 6 months that produced a negative impact. Thus, regardless of the fact that it has been noted that older individuals may experience less stress in general than their younger counterparts, studies that have examined the effects of stress amongst older adults have yielded inconsistent findings.

**PTSD Symptoms and Severity of the Event**

Although the literature indicates that approximately only a quarter of individuals who are exposed to a traumatic event continue to develop PTSD, diagnostic PTSD and PTSD symptoms have been evidenced to persist several years after the traumatic event. Persistence of PTSD appears to be particularly associated with the severity, intensity, and duration of the trauma. In a meta-analysis of the disaster literature, Rubonis and Bickman (1991) found three variables to be most important in predicting how individuals respond to disasters and whether psychopathology will develop. These disaster variables are as follows: the death rate associated with the disaster, the time since the disaster, and the degree of human responsibility for the disaster. In other words, the higher the death rate,
the more involvement that a human being had with the disaster (more distress in man-made versus natural disasters), and the less time that has elapsed since the disaster, the greater the level of pathology that may develop. Martino (2002) has cited other characteristics of disasters as being central to increased stress levels among individuals exposed. These are listed as follows: disasters where victims are exposed to life threatening situations and/or witness the death of others, disasters that impact a large segment of a local population when accompanied with widespread property damage, and disasters that are followed by a continued threat of occurrence.

In regard to some of these variables that make the disaster considered more severe, one event that has been well researched in the trauma literature is the Buffalo Creek disaster. Buffalo Creek is a small mining company located in a valley in West Virginia. In February of 1972, it had been raining for several days and a dam at the top of the valley had collapsed, pouring millions of gallons of water and black sludge into the valley. The disaster killed 125 people, destroyed homes and businesses, and left thousands of people homeless (Grace et al., 1993). A study of survivors of the Buffalo Creek disaster found that 17% of individuals continued to meet diagnostic criteria for PTSD as long as 14 years after the event. Other support of this comes from Shore, Tatum, & Vollmer (1986) in the study of the impact of the Mt. St. Helens eruption.

In regard to older people, the majority of the literature on the impact of trauma focuses on studies of war. In fact, over 50% of all PTSD investigations of older persons in the last 20 years examine war (Blake, Cooke, & Keane, 1992). Most significant are findings from studies of World War II, Korean War, and Vietnam War veterans, which indicate that PTSD exists 30, 40, and even 50 years after the initial exposure to the
traumatic event. Studies of World War II veterans reveal current PTSD prevalence estimates of 19-29%. Even more powerful are the war studies that examine individuals who were in direct combat or prisoners of war. In a study conducted by Elder and Clipp (1989), 50% of heavy combat veterans reported symptoms of PTSD in the immediate time after the war and 25% reported symptoms 45 years later. Studies focusing on prisoners of war from World War II and the Korean War, found significantly higher rates of PTSD, with estimated rates ranging from 42-70%. Some specific factors related to POWs that lend to the severity of their experience include adverse conditions such as isolation, no knowledge or control of destiny, mainnutrition and sickness, and a hostile and abusive environment. Beebe (1975) showed that POWs showed more psychiatric morbidity and psychosocial maladjustment than combat veterans who were not exposed to such severe, negative conditions. Thus, as supported by the literature (Hyer & Soinle, 2001; Weinraub & Ruskin, 1999; Yehuda, 2002), the more intense or severe the traumatic event is to the individual, the more likely are the chances that PTSD will persist.

In a study of 188 POWs of WWII, Kluznik, Speed, & Van Valkenberg (1986) showed lifetime diagnoses of PTSD in approximately 70% of the veterans. Forty years after WWII, Kluznik et al. (1986) found the following pattern of PTSD in their sample of veterans: 8% had severe symptoms, 24% had moderate symptoms, and 39% had mild symptoms. Zeiss and Dickman (1989) looked at 442 POWs who had been interned by either the German or Japanese during WWII and found that overall, 55.7% reported symptoms consistent with a clinical diagnosis of PTSD even decades after their time in the war. Similar results were found by Speed, Engdahl, & Shwartz (1989) who looked at
62 former POWs of WWII. This study found that 29% of the men continued to meet criteria for PTSD four decades after their initial exposure to the traumatic event. Thus, these studies suggest that severe and prolonged stress present an interaction of emotional, cognitive and behavioral symptoms that relate to the development of PTSD. Studies of POWs have failed to demonstrate a pattern of delayed onset PTSD. Rather, the course of PTSD among this population appears to be immediate and continuous into older age.

PTSD Symptoms and Exposure

Exposure is another variable that has been given specialized attention in the trauma literature. Numerous studies have supported the assertion that the more exposed an individual is to the traumatic event, the greater the chance is that PTSD will develop and endure. What is central to examining exposure is to understand that it is multidimensional and therefore needs to be concretely defined. The trauma literature has identified exposure in various ways: through the amount of television coverage on the topic that an individual views, through proximity to the site of the disaster in terms of where one lives, seeing the disaster as it happened, or knowing someone who had been directly effected, hurt, or killed. Regardless of the type of exposure examined, there is consistency in the literature that the greater the degree of exposure in comparison to a control group, regardless of the type, yields higher levels of distress amongst those surveyed. Goenjian et al. (1994), for instance, examined the level of distress in 179 individuals, ages 59-81, 1.5 years after their experience of an earthquake in Armenia. The earthquake, which occurred in 1988, measured 6.9 on the Richter scale and killed approximately 25,000 people and left 530,000 others homeless and injured. Findings from this study revealed that individuals who resided in cities closest to the earthquake
developed the most posttraumatic stress symptoms. The researchers also showed that PTSD developed in individuals even in the absence of pre-morbid vulnerabilities.

Other studies have shown similar findings. Sprang (1999) studied the effects of the Oklahoma City Bombing on 482 individuals from three different communities: two groups were from Oklahoma City, in which one group was categorized to have had high exposure to the bombing (reported hearing or seeing it) and the other to be a low exposure group, and the third was a control group (from Kentucky) who were indirectly exposed to the bombing. It was found that the individuals in the high exposure group, which were those with both greatest proximity to and exposure to the event, experienced the highest distress levels as assessed on PTSD symptomology. The results also showed that the two exposure groups had higher distress levels than the comparison group from Kentucky. In another study, Canino et al. (1990) looked at exposed versus non exposed groups of individuals ages 20-68 in Puerto Rico, 1 year after 1985 torrential rains and consequent mudslides that killed 180 people. Results from this study show that post-traumatic stress disorder was significantly more common among those exposed to the disaster than among those unexposed.

In examining the role that exposure plays in the development or exacerbation of PTSD symptoms, it is also important to focus on exposure that is produced by the media. To date, there are many studies that have examined the influence of television or news coverage in relation to increased levels of distress after the experience of a traumatic event. Long, Chamberlin, and Vincent (1994) looked at the effects that media coverage of the Gulf War had on a community sample of Vietnam Veterans. Results from this study showed that media coverage increased memories of earlier combat and thus increased
PTSD levels in a large percentage of the sample. This finding that continued exposure to violence could have adverse effects on mental health has been supported in several other studies. Slone (2000), for instance, assessed anxiety responses to television coverage of national threat situations and terrorism in Israel. In this study, the experimental group was exposed to a 12-minute video that portrayed threats and actual terrorist acts such as violent attacks where as the control group was exposed to a same length video that included relevant local news without the graphic terrorist material. Slone found that anxiety was significantly higher for those who viewed the video with the more violent content. In regard to children, Pfefferbaum et al. (2001) studied the effects of proximity to and media coverage of the Oklahoma City bombing on 69 sixth graders who lived within 100 miles of Oklahoma City. These findings indicate that exposure plays a large role in higher distress levels, as those children who watched more news coverage and/or knew someone or had a friend who knew someone who was killed had higher PTSD symptomology.

PTSD Symptoms and Past Trauma History

The literature on prior trauma history and current PTSD symptom expression has yielded mixed evidence. Hyer and Sohale (2001) posit that people who experienced trauma in the past and were successful in getting through it show they have an increase in mastery, coping skills, self-knowledge, enhanced social ties, and changes in values which will in turn reduce their chances of becoming significantly distressed by a current stressor. Thus, these individuals are thought to have a resiliency to get through the new stressor by tapping into the coping skills and resources they used in the past. In essence, exposure to stress increases resistance to subsequent stress and may additionally protect
one from harm. In regard to older adults, it has been proposed that these individuals bring a wide history of experience with them in their encounters of any crisis (Norris & Murrell, 1988). This may lend to the understanding of research studies (Norris & Marell, 1988) that have failed to find greater stress reactions in older adults in comparison to their younger counterparts.

Stress and trauma research, however, has tended to focus on the adverse effects of stress and negative life events. Hence, prior stress and trauma have also been well documented in the literature (Abenhein et al., 1992; Breslau et al., 1998; Desivilya et al., 1996) as risk factors for current PTSD and/or PTSD symptoms upon experiencing recent trauma. In a study conducted by Trautman, et al. (2002), the effects of prior trauma and age were examined in relation to posttraumatic stress symptoms in Asian and Middle Eastern immigrants after the 1995 Oklahoma City bombing. Findings showed that posttraumatic stress symptoms from prior trauma, which for this group primarily included terrorism and stress experienced during childhood and/or in the subjects’ homeland, was the most robust predictor of PTSD symptoms in reaction to the Oklahoma City bombing. In this study, PTSD from previous trauma was a larger predictor of current PTSD than both exposure to the bombing and the level of distress that was experienced during the time of the bombing.

In a study of Israeli Holocaust survivors, Solomon and Prager (1992) found prior trauma to be a critical factor in poor adjustment to a later life stressor. In this landmark study, it was found that Israeli Holocaust survivors were more likely than a control group of elderly Israelis without a Holocaust background to experience psychological distress during the Persian Gulf War and the attacks of Israeli civilians with Scud missiles.
Danielli (1982) asserts that in Holocaust survivors, the psychological vulnerability that was experienced causes added burdens to the aging process and the challenges of everyday life. Steinitz (1982) also noted the detrimental effects of the Holocaust on one's ability to cope with life challenges as one grows older. Steinitz (1982) notes that survivor syndrome which may have been controlled, takes on a dominant role in one's life making it difficult to handle the losses and disabilities that accompany aging. Similar to these findings, Moyers (1996) found an exacerbation of symptoms in Korean combat veterans with PTSD following the Oklahoma City bombing. Among the veterans surveyed in this study, those who had actually witnessed bombings during their time in combat demonstrated higher re-experiencing of symptoms such as flashbacks of the war. Other symptoms displayed included increased memories of the war, increased heart rates, difficulty sleeping, and nightmares. Long et al. (1994) examined the effects of television coverage of the Gulf War on reactivation of negative combat memories in Vietnam veterans. This study included 88 Vietnam veterans between the ages of 40 and 66 who spent between 7 and 12 months in Vietnam. Results of this study indicated that memories of past combat and trauma increased PTSD levels in individuals when exposed to a current stressor such as the Gulf War.

It is clear from the research that early trauma has been found to place an individual at risk for the development of PTSD or PTSD symptoms in response to later traumas. There is further support in the literature that the age at which the first trauma was experienced is even more critical in determining development of PTSD (Van der Kolk & McFarlane, 1996). Studies have yielded fairly consistent findings that the younger one is at the time of the initial traumatic event, the more difficulty in functioning
the individual will have in coping with a subsequent trauma. It is important to note that
the inoculation hypothesis is something that should not be overlooked, as there is some
evidence to support this more positive view on aging as compared to something more
pathological in nature.

Social Support as a Mediator of Stress

To date, there is an abundance of literature that focuses on how social support
may have beneficial effects on health and emotional/psychological well-being in relation
to stressful life experiences. Social support has been found to be a mediator of stress and
better health adjustment in studies of heart attack victims (Kobasa, 1979) and cancer
patients (Wortman, 1984), and has been found to play a protective role in pregnancy
outcome, accidents, recovery from illness, and psychiatric morbidity (Broadhead, et al.,
1983). In regard to social support, the buffering hypothesis is a theory that has been
studied extensively over the past few decades. This theory asserts that social support
serves a protective role primarily during times of stress, through an enhancement of
adaptive coping behavior (Cobb, 1976; Cohen & Wills, 1985). According to this theory,
there are two purposes that social support serves. For one, it has been documented that
support may mediate between the stressful event and a stress reaction by preventing a
cognitive appraisal of the event that is highly stressful. Secondly, support may mediate
between the experience of stress and the onset of negative outcome by providing a
solution to the problem (Cohen & Wills, 1985).

In regard to trauma as a specific stressor, there has not been much research that
has examined whether supportive relationships help the elderly in adapting to stressful
life experiences. Of the information that is published, findings have shown that emotional
support at the time of trauma or shortly after may be the primary protection against being traumatized (Vander Kolk & McFarlane, 1996). In the context of trauma, it has been cited that one important factor of social support is that it enhances the emotional processing necessary for integration of experiences (Foà & Kozak, 1986). In a well-documented study, Bolin and Xlenow (1982) showed that fever PTSD symptoms were reported by persons who were married, had social support, and were of higher economic status. In a study by Norris and Kaniasty (1996), the impact of receiving social support on levels of perceived social support and psychological distress was examined in two independent samples of hurricane victims. These authors found both received and perceived support to be important in moderating the effects of stress. In a hallmark study by Lowenthal and Haven (1968) that examined the effects of stressful life experiences such as retirement and widowhood, the researchers found that the presence of a close companion or confidant was associated with overall better adjustment. Other studies (Larson, 1978) have examined variables such as life satisfaction and well-being without the specificity of a traumatic experience, suggesting that social relationships increase these variables among older adults.

In studies of social support and outcome, different parameters of social support have been examined. Cobb (1975) makes reference to esteem support or emotional support, which is defined as information that a person is esteemed and accepted. Cohen and Wills (1985) also distinguish between other types of support such as informational, social companionship, and instrumental support. According to Cohen and Wills (1985), informational support refers to help with defining, understanding, and coping with problematic events; social companionship refers to spending time with others in
recreational and leisure activities; and instrumental support refers to the provision of financial aid, material resources, and needed services. In regard to the mediating effects of social relationship on stress, relationships have been further segmented into three dimensions: the quantitative structure and composition of the social network, the type and amount of social support functions provided through the network, and the qualitative perceived adequacy of the social support provided.

Blazer (1982) examined the role of social support in regard to the three parameters of support: roles and available attachments, perceived social support, and frequency of social interaction. These factors of social support and mortality were examined in a sample of 331 individuals aged 65 years or older. Findings from this study demonstrated that perceived social support, a subjective appraisal of the social network, was a stronger predictor of mortality if impaired than the other two parameters of social support. A review of the literature indicates a movement in the past 10 to 20 years, to distinguish between the two major components of social support: received and perceived support. According to Norris and Kaniasty (1996),

Received support refers to naturally occurring helping behaviors that are being provided, whereas perceived support refers to the belief that such helping behaviors would be provided when needed. (p. 498)

Barrera (1986) notes that received support is helping behavior that already occurred whereas perceived support is helping behavior that one may think will happen.

Over the years, there have been discrepancies in the literature in regard to the importance of perceived support versus actual received support as a mediator of stress or predictor of life satisfaction and well-being. Although both perceived and received
support have been found to mediate the effects of stress (Newsom & Schulz, 1996; Norris & Kaniasty, 1996), larger attention has been given in recent years to the role of perceived support. According to Norris and Kaniasty (1996), there has been a shift in contemporary psychology to a cognitive paradigm to which perceived support can be categorized. Perceived support has been found to be more important than received support in promoting psychological health and protecting against the effects of stress according to some research (Norris & Kaniasty, 1996). Some researchers (Patrick, Cottrell, & Barnes, 2001) have found perceived emotional support to be particularly more important than received support for older adults in particular who experience age related limitations to their functional ability. For elders who are not as mobile due to declines in health and who live a distance to many close friends, it may be difficult to receive support from others. Consistent with this assumption, Berkman, Oxman, & Seeman, as indicated by Newsom & Schulz (1996), found that physical functioning predicted the number of face-to-face contacts and the number of sources of instrumental support. Thus, if an individual is less mobile, he or she may have a reduced amount of social contacts. In favor of the role of perceived support, Diener, Suh, Lucas, & Smith (1999) has shown that in the absence of external resources and interactions with others, individuals are generally able to maintain psychological integrity if they feel valued, loved, and esteemed. Newsom and Schulz (1996) examined the relations among physical functioning, social support, depressive symptoms, and life satisfaction in a sample of 734 adults aged 65 and older. These authors found that overall, impairment was associated with fewer friendship contracts, fewer family contacts, less perceived belonging support, and less perceived tangible aid. In regard to the utility of perceived social support, it is important to note that
although received support played a role in enhancing the quality of life variables, the received contacts had a reduced relation to quality of life variables when perceptions of support were accounted for. Thus, cognitive perceptions of support were found to be the central factor in reducing depressive symptoms and enhancing feelings about quality of life.

Along with this discussion of the significance of perceived support, it is noteworthy to add that some studies have shown that received but unwanted support has potentially negative effects on well-being (Cohen & McKay, 1984; Rook, 1987) and health. This is particularly relevant for older adults who may have been persuaded by children or spouses to move into retirement communities or assisted living facilities against their will, where they may be lacking in a sense of social connectedness. Some older adults are brought into the homes of their children or have living arrangements in which there are home health care aids caring for the individual to whom the elder may not be satisfied with. Thus, in these cases, although there is interaction with others and individuals available to assist the older person, the quality of this support may not be rated highly by the older adult. There is evidence in the literature that social interaction that is the result of obligation such as those that a spouse, parent, or other relatives experiences, can produce stressful demands, which may outweigh these roles’ potential positive consequences for self-esteem, competence, or identity (Berbrier & Schulte, 1993; Thoits, 1992). In a study by Solomon, Smith, Robins, & Fischbach (1987), the effects of social involvement on mental health reactions to exposure to disaster were examined and compared in men and women. This study indicated that in comparison to men, women who were married and rated their spousal relationship as excellent had
worse outcomes following disaster than those with weaker spouse relationships. The authors suggest that this may be because when there are high demands for nurturance and emotional support, an obligation that is typically related to the female gender role, there is a negative impact on women’s mental health. In a study of the Buffalo Creek disaster, Gleser et al. (1981) also found that women who take on obligatory roles show higher rates of distress in response to a specific stressful experience. In this study, women who were married showed higher psychopathology than women who lived alone.

It is important to note, however, that the findings from these studies are equivocal. Thus, for purposes of this study both broader types of support will be measured. Perceived support will be measured through a formal assessment instrument. Received support will be examined through the demographics form that individuals need to complete. On this form, individuals will be asked to include information on their marital status and whether or not they live with someone.

Coping as a Mediator of Stress

Just as there is an abundance of literature on social support in regard to stress and trauma, there is a vast amount of research that exists on coping and coping styles. A large body of research on coping originated from the work of Lazarus and Folkman (1984). According to Lazarus and Folkman’s transactional model of coping (1984), individuals are often presented with a set of internal and external demands that must be managed. When these demands become too great, according to the model, individuals employ a coping process. Pearlin and Schooler (1978) have defined the coping process as
...behavior that protects people from being psychologically harmed by problematic social experience, a behavior that importantly mediated the impact that society has on its members. (p. 2)

In this transactional model, however, stress is defined as a relationship between the person and the environment, whereas coping refers more specifically to efforts to manage a person-environment relationship that is strained (Lazarus & Folkman, 1984). Included in this model is the concept of cognitive appraisals in which individuals assign meaning to a certain event. There are two components to cognitive appraisal that have been discussed in the literature (Lazarus & Folkman, 1984): primary and secondary appraisals. Primary appraisal refers to the act of judging whether an encounter is irrelevant, benign, positive, or stressful. An event appraised as stressful could include the following: harm or loss such as damage that has already been done, the threat of potential harm or loss, or challenge. Secondary appraisal refers to the act of evaluating coping resources and strategies. At this point, individuals consider the options and decide how to deal with the stressor.

As discussed in Groomes and Leahy (2002), research by Shontz (1975) suggests there is another component of stress appraisal that involves the level of experience with the stressful situation. Based on Shontz's (1975) work, as familiarity increases and confidence in mastery of coping is established, stressful situations become less threatening. Thus, an individual will experience less negative consequences to his or her sense of well-being when particular situations occur more frequently (Groomes & Leahy, 2002).
In general, the coping literature has defined specific types of coping styles based on an individual's appraisal and methods to dealing with stress. The three most common coping styles discussed in the literature are emotion focused, problem focused, and avoidance (Billings & Moos, 1984; Endler & Parker, 1994; Lazarus & Folkman, 1984; Pearlin & Schoolder, 1978). It is emotion focused and problem focused coping, however, that has gotten the widest attention in the literature. Emotion focused coping refers to the regulation of distressing emotion whereas problem or task focused coping refers to the act of doing something to change the problem causing distress (Lazarus & Folkman, 1985). Lazarus and Folkman (1984) suggest that emotion focused coping is used most often when individuals believe there is nothing that can be done to change the situation. Problem focused coping, on the contrary, is effective when the situation is perceived as changeable. In regard to the events of September 11th and the continued threat of terrorism, many individuals have taken the perspective that the situation is unchangeable. Thus, perhaps an emotion focused coping style is most effective in dealing with the stress accompanied by this event.

Studies of Terrorism

As aforementioned, previous to September 11th, 2001, the deadliest terrorist attack on U.S. soil was the bombing of the Alfred P. Murrah Federal building in 1995. There have been other smaller attacks aimed towards the United States such as the 1993 bombing of the World Trade Center and the 1998 bombings of U.S. embassies in Africa as previously described. However, there are no studies that examined the effects of these earlier attacks and only a moderate number of studies that have examined the psychological effects of the Oklahoma City bombing. In understanding the psychological
impact that September 11th had on individuals, it is important to look at the literature of the effects of terrorism in other countries. Israel is a country that has suffered an extensive amount of terrorism from the Palestinians over the last three decades. Although there is a scarcity of sound methodological studies that have investigated the prevalence of PTSD after a terrorist attack, an overview of the prevailing literature will be provided.

It has been documented (Slone, 2000) that political circumstances in general produce an impact on emotional well-being of individuals. Slone highlights the host of studies that found negative psychological effects in individuals who experienced political conflict in countries such as Northern Ireland (Cairns & Wilson, 1989), South Africa, Lebanon, and Guatemala. In regard to children and adolescents, there are some studies that show extreme stress reactions and PTSD as a result of exposure to terrorism. As indicated by Baker (1990), research has examined the negative effects of state induced trauma and terrorism on Black children in South Africa, Lebanese children, and Palestinian children in the West Bank and Gaza Strip. These studies have indicated the prevalence of post-traumatic symptoms such as psychosomatic symptoms, fear, and sleep disturbances. Baker also found lowered self-esteem, depression, and conduct problems such as disobedience and increased fighting to be a result of children’s exposure to political and military violence as associated with terrorism.

Due to the intensity and longevity of terrorist attacks in Israel, much of the research that does exist examines the effects of terrorism and political conflict is based on Israeli men, women, and children as subjects. In a study conducted by Friedland and Merrari (1985), Israelis’ attitudes towards terrorism and degree of fear and concern for personal safety during the 1979 calendar year were assessed. According to the
researchers, during 1979, 271 terrorist incidents took place in Israel, which resulted in 23 deaths and 344 individuals who were severely injured. The study focused on a hostage taking incident in particular in which a family was killed. This study found that 79% of the sample expressed extreme worry or worry that they or family members might get hurt from future terrorist attacks in the immediate days after the hostage attacks, and 73% expressed extreme worry when surveyed again several weeks after the incident.

There are a number of studies that have found long-term detrimental effects on mental health in individuals due to terrorism in Israel. A study by Desivilya et al. (1996) examined the long-term effects of a terrorist attack on current mental health in Israeli adolescents. The attack took place in 1974 in which a group of 120 high school children were seized and taken hostage by armed Palestinian guerillas. The seizure extended for 16 hours in which 22 of the teenagers were killed, and many others were severely wounded. Results of this study demonstrate that the majority of the survivors have experienced traumatic stress symptoms even 17 years after the attack. The most common symptom of traumatic stress in this sample was hypervigilance, which includes a tendency to be on guard and prepared for potential danger. Shaler (1992) examined the impact of a terrorist attack on 14 survivors immediately following the attack and 10 months later. The attack under investigation occurred in 1985 in which a bus carrying 41 passengers, en route from Tel-Aviv to Jerusalem, was overturned by a Palestinian and set ablaze. Fourteen of the bus’s passengers died immediately, and 23 were evacuated to hospitals. Findings from this study showed that majority of individuals showed some form of psychological distress, with 4% suffering from clinical PTSD. Findings of stress and PTSD have also been documented by Abenhaim et al. (1992) who examined 254
survivors of terrorist attacks occurring in France between 1982 and 1987 and Curran et al. (1990) who examined 26 survivors of the 1987 Enniskillen bombing in Northern Ireland. In regard to the latter study, long-term effects of the bombing that killed 11 individuals and injured 60 were under investigation. This study found a 50% prevalence of PTSD 6 months after the initial attack.

Ayalon (1993) notes the importance of distinguishing between terrorism that includes exposure to bombings and explosions versus face-to-face exposure to terrorists who seize a settlement, attack civilians, and take individuals hostage. According to this research, a face-to-face encounter involves many variables, which are associated with prolonged trauma on part of the survivors. It is significant to note that in regard to the terrorist attacks of September 11th, there are no surviving individuals who experienced the face-to-face trauma that Ayalon (1993) refers to. Rather, there are individuals who were more exposed than others on a number of levels: those who were in danger of their lives by being in the buildings and having had to escape, those who were in the lower Manhattan vicinity who had to escape to safety as well, those who may have seen the explosion and towers collapsing from a distance, those who were stuck on subway trains without knowledge of what was occurring on the outside world, those who did not know where their loved ones were, those who lost loved ones in the attacks, and those individuals who repeatedly saw images on television or through other media sources.

A review of the literature indicates that the majority of studies on terrorism focus on direct survivors rather than individuals who can be categorized into one of the aforementioned groups. Cairns and Wilson (1993) have investigated the political violence in Northern Ireland through a review of the studies to date and have found that overall, a
greater proportion of the population have suffered from mild forms of stress. It has also been found that of these individuals who experience distress, it has been generally acute. Thus, findings from these authors suggest that people in Northern Ireland have coped well with the stress of living amongst political violence. Thus, although the literature reveals the detrimental effects of terrorism, these studies typically include direct survivors. There is a paucity of research that examines terrorism that is more globally experienced by individuals who reside in the neighborhoods affected by a terrorist attack but who were not direct survivors.

There is body of research that examines the concept of experiencing a stress reaction while being an indirect victim of a traumatic event. As indicated in Sprang (2001), the term “secondary catastrophic stress reaction” (p. 332) was used by Figley (1989) to define this phenomenon. According to Figley as cited in Sprang (2001), “secondary catastrophic stress reaction” refers to “the psychological induction of an experience by a non participant that can result in substantial psychological distress” (p. 332). Sprang (2001) also notes that the DSM-IV (American Psychiatric Association, 2001) includes in its description of Criterion A for Post Traumatic Stress Disorder, the following, “learning about unexpected or violent death, serious harm, threat of death or injury experienced by a family member or close associate” (p. 424). Other studies (Dixon, Rehling, & Shiwach, 1993) that examined catastrophes in particular, have discussed the negative effect that an event can have on those who are not physically present. Thus, in the case of September 11th, it is possible that individuals who were not in the World Trade Center buildings or even in the vicinity of lower Manhattan, could
still have developed a high stress reaction through the concept of secondary learning or vicarious traumatization.

*Findings on PTSD and September 11th*

The graphic images of the World Trade Center and Pentagon's destruction, coupled with the unrelenting post-disaster threats of war and further terrorism, may increase the risk of development of PTSD in certain individuals. The impact of negative events that continue after the initial disaster has occurred has been examined in other studies. In a study of a massive earthquake in Armenia, it was found that (Goetghe et al., 1994), post-disaster events such as recurrent aftershocks, separation of families and friends, loss of physical possessions, lack of housing, unemployment, and shortages of food, gasoline, medical supplies, etc. served to exacerbate symptoms of PTSD or interfere with symptom resolution. Moreover, undisposed debris and destroyed buildings acted as a reminder of the disaster, which could have impacted distress levels. This is similar to Ground Zero and the tons of debris left in the immediate proximity of the World Trade Center. Thus, the scenes of destruction that were viewed on the news, and for New Yorkers as they walked or drove along the West Side of Manhattan may further serve to heighten distress levels.

Many of the studies to date that examine the psychological effects of September 11th have been investigated in the short term and have relied on random sampling conducted by telephone. The studies have yielded varying prevalence rates of PTSD in individuals in response to the events of September 11th. Schuster et al. (2001) surveyed 560 individuals using a random-digit dialing sampling process 3 to 5 days after September 11th. The results of this study indicate that 44% of nationally representative
sample of adults reported one or more substantial symptom of stress as indicated by the PTSD checklist and 90 % reported at least low levels of stress symptoms. The study also showed that rates of stress reactions were highest amongst those individuals with past experiences of trauma related stress and those with preexisting psychological problems. The findings also show that extensive television viewing was associated with a substantial stress reaction in that 58% of the participants who watched 13 hours of television on the day of the attacks had one or more symptoms of PTSD on the symptom checklist. This study included individuals who were 17 and older. However, there is no indication as to how many older adults were sampled.

Similarly, Galea, Ahem, & Resnick (2002) examined the prevalence of PTSD in a sample of 1008 adults living South of 110th Street in Manhattan 5 to 9 weeks after the World Trade Center attacks. In this study, random digit dialing was also utilized as a sampling technique, and phone interviews were conducted with those individuals who agreed to participate. Findings from this study suggest that 7.5% of the adults living south of 110th street reported symptoms consistent with current PTSD, and 9.7% reported symptoms consistent with current major depression, when pre-morbid functioning was controlled for. This study also demonstrated the effects of proximity, with those living closest to the World Trade Center site being 3 times as likely to have PTSD as those living further away.

Schlenger et al. (2002) conducted a web based descriptive epidemiological study based on a national cross sectional sample of adults designed to estimate the prevalence of symptoms of PTSD in the second month after the attacks and to examine the effects of both direct and indirect exposure to the events of September 11th. This study included a
total of 2,273 individuals from across the United States and demonstrated the significance of geographical proximity and exposure as predictors of PTSD. In regard to geographical proximity, 11.2% of New York City residents were found to have a probable diagnosis of PTSD 2 months after the attacks in comparison to 4.3% of individuals residing in other parts of the nation. In regard to exposure, this study suggests that the prevalence of probable PTSD was significantly associated with the number of hours of television coverage of the attacks that participants reported watching on September 11th and in the days that followed.

Boscarino, Gales, Ahern, Resnick, & Vlahov (2002) conducted a study on the prevalence of mental health utilization 30 days after September 11th and the variables that may have influenced such tendency to seek services. The factors associated with increased utilization post September 11th included the following: being female, being in the 18-24, 25-44, or 45-64 age groups, experiencing other lifetime traumatic events, and experiencing stressful life events in the past 12 months. Although other trauma and stress research indicates the importance of pre-morbid or prior clinical diagnoses as a risk factor for increased distress after a traumatic event, this research study did not find that to be a significant factor. This study also highlighted that younger adults were more likely than older adults to seek services. Findings from this study are limited for two reasons. First, 30 days after the attacks may be too early to investigate utilization. There are individuals who may have needed some time to process the event on their own or tried other means of coping before they turned to mental health services. Thus, although these individuals may have eventually gone on to seek treatment, they may have done so after the 30-day period. There are also individuals who may have needed to wait for a general doctor to
make a referral to a mental health practitioner or wait for an appointment with a mental health professional. Thus, these individuals may have eventually seen someone after the 30-day period. The second issue in this study is the fact that it is unclear as to how many individuals actually experienced distress. It was reported that older adults were less likely than younger adults to use mental health services. However, this does not imply that older adults experienced less distress. It may also be the case that older adults in general are less likely to view mental health services as an alternative to coping.

Kinzie et al. (2002) studied the effects of September 11th on refugees who had already been traumatized and diagnosed with a clinical DSM-IV Axis I diagnosis. The study examined a clinical population of 181 Vietnamese, Cambodian, Laotian, Bosnian, and Somalian refugees who previously experienced political trauma within their own countries. Similar to other research findings, this study suggested that individuals who had a prior diagnosis of PTSD, had the strongest distress reactions than individuals diagnosed with other Axis I disorders. Individuals with a primary diagnosis of depression, however, also experienced a strong stress reaction.

Pantin, Schwartz, Prado, Feaster, and Szapocznik (2003) examined the severity of PTSD symptoms in 110 Hispanic immigrants living in Miami, who were exposed to the September 11th attacks through television. These researchers also examined the relationship between previous types of traumatic exposure and both September 11th related symptoms and DSM-IV PTSD symptoms. This study was conducted 2 to 3 months after the attacks and utilized self-report measures to collect information. Findings from this study indicate that 14% of the sample reported September 11th related PTSD symptoms consistent with a DSM-IV diagnosis. In latter analyses, when the researchers
recalculated based on only criterion A (person being exposed to a traumatic event in which both of the following were present: (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others and (2) the person’s response involved intense fear, helplessness, or horror), criterion B (the traumatic event is persistently reexperienced), criterion C (there is persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness), criterion D (there are persistent symptoms of increased arousal), and criterion E (duration of the disturbance is more than one month) without criterion F (the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning), PTSD rates increased to 35% of the sample. Thus, indicating a fairly high level of PTSD. This study also found previous trauma exposure to be significantly related to PTSD related symptomology. The study failed to yield significant findings for the effects of television exposure as a risk factor for development of PTSD. This is in contrast to findings from other research (Pfefferbaum et al., 2001) that has examined the impact of television exposure on PTSD symptoms.

Other resources ("Four groups of New Yorkers", 2003) have shown four groups to be at greatest risk for a persistent diagnosis of PTSD: individuals who are younger than 30 and older than 60, middle income New Yorkers, New Yorkers who were unemployed in the 6 months to 1 year after September 11th, and those who suffered at least two life stressors since September 11th.

There are no studies to date that examine all the variables being investigated in this study. Of the studies that have included some of the variables, PTSD was examined
in the weeks or months following the attacks. Thus, there is a paucity of studies that focus
on long-term effects of September 11th. A review of the literature on September 11th thus
far indicates that there is a large amount of research still needed in regard to examining
risk factors for distress as well as resiliency and effective coping strategies for those
individuals who did not experience adverse effects. The literature review has yielded
inconsistent findings in regard to age as a risk factor for PTSD as well as some other
variables and prevalence rates in general. Given these findings, the current study becomes
necessary.

Methodological Problems in the Literature

In addition to the fact that there is scarcity of literature that examines older adults'
reaction to trauma beyond war trauma, studies that have been conducted have been
documented (Fields, 1996) to have several methodological problems. The PTSD research
in general presents several flaws that can affect the validity of the findings. Some of these
problems include the following: the data is usually retrospective, there is a lack of a
control group, and the fact that determining the amount of stress experienced as well as
the individual’s pre-morbid level of psychological functioning is difficult, if not
impossible (Weintrub & Ruskin, 1999).

With regard to older adults, existing research is even more problematic.
According to Fields (1996), for one, studies that report outcome measures for different
age groups do not specifically test the differential vulnerability hypothesis. Therefore,
negative outcomes amongst older adults may have been a result of variables not
particularly related to age. Secondly, disasters for which age data have been reported vary
widely in type and should not be generalized. Only a limited amount of studies explored
the role that age plays in predicting psychosocial outcome in the context of other
variables. Furthermore, many studies may not capture the true suffering experienced by
older individuals because methodology includes scales or interviews that require
individuals to meet full diagnosis for PTSD. So, although people may experience several
symptoms of PTSD they may not meet the criteria for the full diagnosis (Fields, 1996)
and may therefore not be documented in the study.
Chapter III
Methodology

This chapter will discuss the methodology used in this study. An overview of the sample and sampling procedures will be discussed. A detailed description of each research measure is provided including information about reliability and validity. The experimental design of this study and statistical analyses conducted, along with the rationale for their selection are reviewed at length.

Participant Response Rate

The number of participants needed for this study was computed based on the types of data analyses being utilized. Standard linear multiple regressions, part and partial correlations, and analyses of variance were used to analyze the data and test hypotheses. Multiple regressions were the primary analyses in the study and as such, a post hoc power analysis was determined for this type of analysis. As discussed in Tabachnik and Fidell (2001), Green suggests the following rule of thumb in determining the required sample size for a multiple regression with alpha at .05 and a medium effect size (.20): \( n > 50 + 8m \). In this formula, "m" signifies the number of independent variables being examined in the study. Although there were five general predictor variables being examined in this study, only four predictor variables were being studied in the primary analysis. Based on this formula, \( n > 50 + 8 \times 4 \), 82 participants were needed for this study.

Participant Sampling Strategy

Participants included a non-clinical sample of 85 male and female community dwelling individuals aged 65 and older who did not evidence signs of cognitive
impairment. Participants are from senior centers and older adult community programs in various neighborhoods of Brooklyn, the Bronx, and Manhattan as well as from an assisted living facility in Maplewood, New Jersey. Participation for this study was voluntary and individuals who participated were either placed in two lotteries worth $50 each, which was determined and awarded at the end of the data collection stage of the study (New York sample) or given a small thank you gift such as a picture frame (New Jersey sample).

One hundred and ten individuals initially expressed interest in the study and were eventually contacted for further participation. From that original number of potential respondents, 85 questionnaires were completed, yielding a response rate of approximately 77%. Of the 25 individuals not included in the sample, 4 withdrew once they reviewed the survey, as they thought it would be too time consuming, 2 were younger than 65 years of age, 2 showed signs of significant cognitive limitations including reported problems with memory, and 2 filled out the questionnaires but left too many items blank. All others failed to respond to my attempts to reach them.

Population

Table 1 presents the obtained sample for this study, which was comprised of 28 (32.9%) men and 56 (65.9%) women. One survey was lacking identifying information regarding gender. Ages ranged from 63 years to 99 years, \( M = 75.8, SD = 6.6 \). Of the 85 participants in the study, 74 (87%) were White, 2 (2.4%) were African American, 4 (4.7%) were Latino, 3 (3.5%) were Native American, and 2 (2.4%) did not indicate a specific ethnic background. With respect to religion, 56 (65.9%) of the participants identified themselves as Catholic, with other religious make-up as follows: 15 Jewish
(17.6%) and 8 Protestant (9.4%). Three participants (3.6%) classified themselves as atheist or having no religion, and 3(3.5%) classified their religion as something other than what was listed. Most participants (n= 40, 47.1%) had an annual income between $15,000-$30,000, with 17 (20%) having an income below $15,000, 14 (16.5%) between $30,000-$50,000, 2 (2.4%) between $50,000-$60,000 and 9 (10.6%) with an income above $65,000. In regard to education, the majority of the participants (n= 40, 47.1%) have a high school diploma with 16 (18.8%) having less than high school education, 9 (10.6%) having some college education, 8 (9.4%) with a baccalaureate degree, 7 (8.2%) with a master’s degree, and 4 (4.7%) with an advanced educational degree. Of the respondents in this sample, 41.2% live alone (n=35) and 58.8% (n=50) live with someone. With respect to further breakdown of living arrangements, 48.2% (n=41) of the respondents live in their own home/apartment, while 11.8% (n=10) reside with family/friends and 38.8% (n=33) of the sample indicated that they reside with a spouse. Most of the respondents in this sample (n=39; 45.9%) live within 5.1-11 miles from Ground Zero, with 7 (8.2%) living less than 2 miles away, 10 (11.8%) within 2.1-5 miles, 11 (13.0%) 11.1-19 miles, and 18 (21.2%) living greater than 19 miles away.

In regard to 9/11 related television coverage, 5.9% (n=5) of the sample watched less than 1 hour of coverage, 27% (n=23) watched between 1-3 hours of coverage, 31.8% watched between 4-7 hours of coverage, 18.8% (n=16) watched 8-12 hours, and 16.5% (n=14) watched 13 hours or more of coverage. With respect to amount of time spent currently watching news programming in general, the breakdown is as follows: 28.2% (n=24) watch less than 1 hour, 48.2% (n=41) watch between 1-3 hours, 20% (n=17) watch
between 4-7 hours, 1.2% (n=1) watch between 8-12 hours, and 1.2% (n=1) watch 13 hours or more.

Procedure
According to the American Psychological Association’s Ethical standards and principles (1992), it is required that approval be obtained by the Institutional Review Board (IRB) before proceeding with the study in regard to collecting data. Once permission from the IRB was granted, I had contacted directors of each site in advance to obtain permission for recruitment and discuss strategies of recruiting. This was done via a phone call in which the study was explained to the director of the site and typically followed by a letter which further explained the study, provided sample survey questions, and included my name, affiliation, and contact information. At the senior centers and community organizations, permission was given to recruit participants during a common hour when most individuals were gathered in a large group setting (typically in the few moments before breakfast or lunch was being served). A script of the nature of the study was read to the group that took approximately 5 minutes. The script was read as follows, “My name is Maria Bartolomeo and I am a graduate student in the counseling psychology Ph.D. program at Seton Hall University in South Orange, NJ. I am conducting a study as part of my requirements for my doctoral dissertation that focuses on reactions to September 11th and levels of distress in the older adult population. I am interested in working with individuals 65 and older upon completion of my degree and have found this group to have unique life experiences that may/may not shape how individuals have reacted to these events. Although a few years have passed since the attacks, I am interested in examining the extent to which individuals still think about and are bothered
by it. I am looking to determine whether variables such as exposure, social support, coping style, and experiences of past trauma play a role in current levels of distress.

Participation in this study would involve approximately 45 minutes to 1 hour of your time and would include filling out 4 surveys and a brief questionnaire that I would administer to you. Participation in this study is voluntary and would help in adding to the body of literature that already exists. If you are interested in participating please see me, and you will also be asked to complete an informed consent form that will confirm your willingness to participate. Thank you for your time.” At some sites, flyers were sent to the directors prior to the visit and posted so that some individuals had a preliminary understanding of the nature of the study and what participation would involve. There were separate flyers that were created for the New York and New Jersey samples (see Appendix A). At the assisted living facility, permission was given to stuff mailboxes with flyers that described the study. A sign-up sheet was created for those who were interested in participating in the study and the researcher contacted each person who volunteered by telephone or e-mail to arrange for a meeting.
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<tr>
<th>Variable</th>
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<tbody>
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<tr>
<td>Native American</td>
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<td>White/ Caucasian</td>
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<td>$50,100-$65,000</td>
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<td>Above $65,100</td>
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<td>Less than high school</td>
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<td>High school</td>
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<tr>
<td>Some college</td>
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<tr>
<td>Baccalaureate</td>
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<tr>
<td>Master’s</td>
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<tr>
<td>Advanced graduate</td>
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<td>41.2</td>
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<tr>
<td>Living with someone</td>
<td>50</td>
<td>58.8</td>
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<table>
<thead>
<tr>
<th>Residency</th>
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<tbody>
<tr>
<td>Less than 2 miles</td>
<td>7</td>
<td>8.2</td>
</tr>
<tr>
<td>2.1-5 miles</td>
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Table 1 (continued)

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<th>Variable</th>
<th>Frequency</th>
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<tr>
<td>5.1-8 miles</td>
<td>20</td>
<td>23.5</td>
</tr>
<tr>
<td>8.1-11 miles</td>
<td>19</td>
<td>22.4</td>
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<tr>
<td>11.1-19 miles</td>
<td>11</td>
<td>13.0</td>
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<td>Greater than 19 miles</td>
<td>18</td>
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Direct exposure

<table>
<thead>
<tr>
<th>Event</th>
<th>Frequency</th>
<th>Percent</th>
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<tbody>
<tr>
<td>At/near crash site on 9/11</td>
<td>9</td>
<td>10.6</td>
</tr>
<tr>
<td>Seen Ground Zero in person after 9/11</td>
<td>26</td>
<td>30.6</td>
</tr>
<tr>
<td>See/smell smoke that day</td>
<td>52</td>
<td>62.7</td>
</tr>
<tr>
<td>Know a friend/loved one who was injured or</td>
<td>22</td>
<td>25.9</td>
</tr>
<tr>
<td>killed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of subjects with direct exposure</td>
<td>57</td>
<td>67.1</td>
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9/11 related television viewing

<table>
<thead>
<tr>
<th>Duration</th>
<th>Frequency</th>
<th>Percent</th>
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<tr>
<td>Less than 1 hour</td>
<td>5</td>
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<td>1-3 hours</td>
<td>23</td>
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<td>4-7 hours</td>
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<td>31.8</td>
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<tr>
<td>8-12 hours</td>
<td>16</td>
<td>18.8</td>
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<tr>
<td>13 hours or more</td>
<td>14</td>
<td>16.5</td>
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Television news viewing

<table>
<thead>
<tr>
<th>Duration</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Less than 1 hour</td>
<td>24</td>
<td>28.2</td>
</tr>
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Table 1 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
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<tr>
<td>1-3 hours</td>
<td>41</td>
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<tr>
<td>4-7 hours</td>
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<td>8-12 hours</td>
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<td>1.2</td>
</tr>
<tr>
<td>15 hours or more</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

to review the measures. In addition to the methods of recruitment already discussed, some subjects were recruited through snowballing in which participants informed me of other individuals who may be likely to take part in the study.

The interviews and data collection took place primarily in the individual's home/ apartment for those living in an assisted living and/or retirement community facility. Other interviews took place in a private space at the specific site such as an administrative office or community room within a local senior center. The participants were not randomly assigned to specific groups. Rather, all participants had the same forms and measures to complete. All individuals who volunteered were asked to read an informed consent form (see Appendix B, separate forms for the New York and New Jersey samples) and told that the study was attempting to examine different reactions to the events of September 11th. Participants were told that by signing the consent form and completing the measures, their agreement to participate would be indicated. Participants were informed both verbally and in writing that their participation was voluntary and that they could withdraw from the study at any time should they so choose. Participants were read instructions for the other measurements and asked to complete the measures on their
own unless they needed assistance due to some physical disability (e.g., poor vision, arthritis). There were four individuals in this study who required assistance in completing the surveys. Further, they were told not to put their name on any of the other forms in the packet to ensure anonymity. Rather, a number code was placed on each packet by which data was eventually entered by the number that was on each packet. Participants were also asked to write down their name and contact number on a raffle ticket that was kept separately and would enter them into the two raffles (for the New York sample). The researcher indicated that at the conclusion of the study, they would have a chance to obtain a summary of the research findings. Due to the emotional material involved in this study for some individuals and the potential for individuals to be diagnosed with PTSD symptoms, the researcher also provided a statement to the participants about referrals for mental health services if necessary. Participation in this study took approximately 45-50 minutes.

Research Instruments

The packet of materials included the following: an informed consent form, a demographic form, and four other measures: the Impact of Events Scale Revised (Weiss & Marmar, 1997); The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); The Traumatic Stress Schedule (Norris, 1990); and The Coping Strategy Indicator (Amirkhan, 1990). The Traumatic Stress Schedule is intended to be administered interview style, and as such, the researcher spent time with all participants to administer the interview. The questionnaires in each packet were placed in a randomized order to counterbalance them and protect from possibility of order effects.
Demographic Information Questionnaire

The demographic form (see Appendix C) for this study includes 18 items that identify individuals on a number of different background variables. Some of these variables are as follows: age, race, gender, ethnicity, marital status, socioeconomic status, and religious affiliation. The demographics sheet also asks for information that reflects the variables specific to this study such as proximity to World Trade Center disaster, number of hours of 9/11 related television viewed, and experience of death or injury of a friend/family member, and/or witnessing death or injury. For some of these items, participants were asked to circle the best choice from a range of possible answers. For example, for assessment of television viewing related to September 11th, individuals were asked to select from 1-3 hours versus 4-7 hours, or greater than 13 hours per day. In regard to proximity, individuals were asked to provide their zip codes, by which the researcher then categorized participants based on miles from the World Trade Center.

Due to the fact that many older adults experience medical and chronic illnesses whose symptoms of poor sleep, restlessness, and so on may mimic PTSD related symptoms, the researcher felt it was important to include a question in which participants were asked to list any current medical conditions they suffer from. It is also important to ask individuals to rate the number of hours of current television news related programming they watch and number of hours currently spent reading the news, considering the ongoing coverage of terrorism threats and 9/11 commission hearing findings that were going on at the time of data collection.
Impact of Events Scale - Revised

Administration and Scoring. The Impact of Event Scale - Revised (IES-R), developed by Weiss and Marmar (1997), is a relatively recent scale that was adapted from the original 15-item Impact of Event Scale created by Foa, Horowitz, Liberman, and AAAA (1979). The original Impact of Event Scale is a self-report measure that has been widely used in trauma research to assess PTSD and stress-related symptomology. Although the test has good psychometric properties, it has been criticized in the literature due to the fact that it assesses only two of the three areas relevant to a DSM diagnosis of PTSD: intrusion and avoidance. The IES-R maintains general compatibility with the original version of the IES. However, it includes the addition of seven items that are designed to measure symptoms of hyperarousal, making the test 22 items in length. Thus, the IES-R is intended to give an assessment of symptomatic status in regard to the three domains of PTSD: intrusion, avoidance, and hyperarousal and therefore has three subscales. This scale does not provide a diagnosis for PTSD and therefore does not have "cut-off" points.

The instructions of the test ask the individual to refer to the course of the past week (last seven days) when thinking about the answers for each item. Examples of items are as follows: "Pictures about it popped into my mind" and "I felt watchful and on guard."

Individuals are asked to rate each item according to the following 5 choices: 0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, and 4 = extremely. Thus, scores can range from 0-4 for each subscale. The scoring scheme for the IES-R is as follows: the Intrusion subscale is the mean item response of items 1, 2, 3, 6, 8, 14, 16, and 20; the Avoidance subscale is the mean item response of items 5, 7, 8, 11, 12, 13, 17, and 22; the Hyperarousal
subscale is the mean item response of items 4, 10, 15, 18, 19, and 21. The scores for each scale on the IES-R are interpreted by the use of the anchor points.

Reliability and Validity: The IES-R has been normed on subjects from two different studies. The first study utilized four separate groups of emergency personnel from three different sites who experienced varying levels of trauma in regard to the 1989 Loma Prieta Earthquake in California. The study in fact had one experimental group (those who worked on the I-880 freeway that collapsed during the earthquake, n= 189) and two control groups (those who lived and worked in the San Francisco Bay Area the day of the earthquake, n= 140 and emergency personnel from the San Diego area, n=101). The IES-R was administered to the three groups after a significant amount of time had elapsed (1.5 years for the I-880 group, 3.3 years for the Bay Area group, and 4.1 for the San Diego group). In total, data from 429 subjects was used for the Time 1 assessment of this study. The IES-R was found to have high internal consistency with alpha coefficients ranging from .79-.87 for the Time 1 data. Time II data of 317 subjects indicated identical findings of sound internal consistency, with alpha coefficients that ranged from .79-.87 (Weiss & Marmar, 1997).

The second study utilized subjects who experienced the 1994 Northridge earthquake in the Los Angeles area. This study examined 206 workers from two insurance companies who were impacted by the earthquake, in which data was used from 197 of the subjects at Time 1. Data for the two groups was collected 6 weeks after the earthquake and then again 6 months after the initial assessment. In this study, individuals ranged in age from young to older adults, making this test applicable for use with the older adult population. The IES-R was also found to have sound internal consistency in
this second study with alpha coefficients ranging from .84-.90 from the Time I data. Time II data of 175 subjects showed equally impressive internal consistency with alphas ranging from .85-.92 (Weiss & Marmar, 1997).

The aforementioned studies also produced evidence for good test-retest reliability with the following coefficient alphas: ranges of .51-.57 for the L-ISSO group of subjects and ranges of .89-.94 for the Northridge Earthquake subjects. Thus, the IES-R variables appear to be stable over time. Factor analyses of this test suggest subscale correlations that range from .74-.84, indicating that the three subscales are highly correlated. The test is valid in that it was developed directly in relation to DSM-IV criteria of PTSD (Weiss & Marmar, 1997). The IES-R can be administered in approximately 10 minutes, hence, making this measure easy to use for older adults being sampled in this study.

The Impact of Events Scale-Revised has also been used in an adapted version by Tucker and Pfefferbaum (2000), in their study of 85 individuals of the Oklahoma City community who sought disaster related help 6 months after the 1995 terrorist attack. Although demographic information of subjects was not provided in this study, it is important to note the similarities between the Oklahoma City bombing and September 11th. Thus, the IES-R could be useful in studying a disaster as catastrophic as the events of September 11th.

The Multidimensional Scale of Perceived Social Support

Administration and Scoring. The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. (1988), is a self-report tool designed to measure the subjective assessment of social support adequacy. Secondly, it was designed to measure adequacy of social support in regard to three specific sources: family, friends, and
significant other. The scale is derived from the 24-item Perceived Social Support Scale and has been revised to include 12 items in which individuals are asked to respond on a 7-point Likert-type scale with ratings ranging from very strongly disagree to very strongly agree. Some of the items are as follows: "I have friends with whom I can share my joys and sorrows" and "There is a special someone who is around when I am in need." In regard to scoring procedures for this measure, all items are reversed scored (8 minus rating) with higher scores equating to greater social support. The total score for the MSPSS is obtained by summing all of the items on the scale and dividing by 12, the total number of items. The MSPSS appears to be simple to use and time conserving in that it is a brief scale. In regard to its structure, the test yields three separate subscale scores for the three distinct support sources assessed, as well as a total score. For purposes of this study, only the total score will be used in determining the participants' level of perceived social support.

Reliability and Validity The reliability for each subscale ranged from coefficient alphas of .85-.91. The reliability of the total scale was .88, suggesting a high level of internal consistency. The test-retest reliability after 2 months was found to range from .72-.85 for the three subscales. The test-retest reliability of the total scale was .85. Thus, this test has been documented to have sound psychometric properties. The scale has also been found (Zimet et al., 1988) to have high factorial validity and moderate construct validity. Although the scale was originally normed on a relatively homogeneous sample of college students, the test has since been used in studies with older individuals.

In a study by Stanley, Beck, and Zebb (1998), the MSPSS (Zimet et al., 1988) was utilized to examine perceived social support in older adult samples. The study
examined the psychometric properties of this scale in two groups of older adults in particular: one with Generalized Anxiety Disorder (n=50) and the other without a psychiatric diagnosis (n=95). The age range in these samples was from 55 – 82 years of age. Findings from both samples of this study have yielded the following psychometric properties: internal consistency alpha coefficients ranges of .87-. 94 for the subscale and total scores of the MSPSS, test-retest reliability coefficients of .73 for the friends subscale, .74 for the family subscale, and .73 for the total scale. In regard to subscale validity, examination of the MSPSS with the non-psychiatric group yielded findings consistent with previous findings from younger non-psychiatric samples documenting increased perceived social support from significant others for married versus unmarried participants.

The Traumatic Stress Schedule

Administration and Scoring. The Traumatic Stress Schedule is a 9-item clinician administered scale that was originally developed as part of a national Institute of Mental Health (NIMH) study workshop on traumatic stress that was held in 1988 (Norris & Riad, '97). It was developed by Norris (1992) and is designed to measure lifetime trauma and recent incidence on a range of different traumatic events. When administering the TSS, Norris (1990) indicates that the report period for an occurrence is intended to be flexible. Thus, the researcher could begin by saying, “in the past year” or “in the past three years” based on the nature of the research under investigation. The scale was developed based on Criterion A provided by the DSM-IV (see chapter 2 for discussion of PTSD criteria according to the DSM-IV), which defines a traumatic event as being beyond the realm of normal human experience (Norris & Riad, 1997).
Individuals are probed according to nine general areas that a traumatic event could be categorized under. For instance in regard to robbery, one of the nine general areas, individuals are asked the following, "did anyone ever take something from you by force or threat of force, such as in robbery, mugging, or a hold-up? The nine broad types of trauma assessed in this measure are as follows: robbery or mugging; physical attack or beating; sexual attack such as rape; motor vehicle accident; loss of a loved one due to an accident, homicide or suicide; personal injury due to a disaster or accident; being forced to evacuate one's home; saving any major life change such as personal relations or a job; and a general terrifying or shocking experience. There are six basic probes that are categorized based on the following areas: the tangible loss of persons or property, scope or the extent to which persons other than the respondent were affected by the incident, threat to life and physical integrity, blame, familiarity, and posttraumatic stress reactions (Norris & Riad, 1997). As indicated in Norris and Riad (1997), Norris included an additional four probes that assess the response to the stressor rather than the characteristics of the stressor. These additional four probes assess the following: being suddenly reminded of it, thinking about it when not meaning to, having nightmares, and avoiding reminiscent situations.

Reliability and Validity. The TSS has been documented to yield high reliability and validity estimates. As indicated in Norris and Riad (1997), Norris and Perilla (1996) reported a test-retest coefficient of .88 between different language versions of the test (Spanish and English) completed by 53 bilingual participants. The participants were administered the assessment one week apart. Reliability estimates of .76 have also been found for the symptom portion of this assessment (Norris & Riad, 1997), suggesting that
it is moderately reliable. The scales methodology has been criticized (Bresnahan, 1990) due to its brevity. However, in selecting a measure that assesses past trauma history, some other scales that are currently being used such as the Traumatic Events Questionnaire (Vrana & Lauterbach, 1994) and the are just as brief whereas others such as the Traumatic Life Events Questionnaire, as cited in Norris & Read (1997), do not have significant studies conducted that discuss psychometric properties.

This scale provides one total score with a range of points from 0-9 based on the sum of how many traumatic events one has experienced. According to Norris (1990), at a minimum, it could include as few as 14 questions and at a maximum would include no more than 26 questions. The scale is useful because, as previously mentioned, it provides a structured set of questions to engage the participant in if she/he answers yes to any of the items. These probes elicit more specific information on the severity of the traumatic event and whether or not the participant feels it has been resolved. It could be useful with older adults in particular due to its simplicity and brevity in regard to instructions and administration. In the current study, this measure will be used to examine an individual's collective history of trauma experiences including those that may have occurred since September 11th, 2001.

*The Coping Strategy Indicator*

*Administration and Scoring.* The Coping Strategy Indicator (CSI), developed by Amirkhan (1990), is a 33-item self-report scale that is used to measure the coping strategies of individuals in dealing with stressful situations. It is intended to be situation specific in that individuals are asked to think about a specific situation when they are responding to items rather than a hypothetical situation or an anticipated event. The CSI
provides three coping subscales that are each comprised of 11 items: Problem solving, Seeking social support, and Avoidance. The three scales were derived from a series of factor analyses, in which an exhaustive list of coping strategies were compiled and then narrowed down. Sample items of the CSI include the following: “Daydreamed about better times.” “Set some goals for yourself to deal with the situation,” and “Wished that people would just leave you alone.”

In regard to the administration of the measure, participants were asked to think of a problem that occurred within the last 6 months that caused them worry and as thought to be important. For purposes of this study, respondents will be asked to think specifically about the events of September 11th as they respond to the items. With the stressful event in mind, participants are asked to indicate the degree to which they used each of the coping strategies in getting through the stressful situation. In regard to scoring, item scores for each subscale are summed, yielding 3 separate subscale scores. According to Amirkhan (1990), high scores in each subscale generally reflect flexibility in coping in comparison to a single strategy. The scale is useful in that it is easy to understand and administer. Further, it is brief in the sense that it requires only 15 minutes to complete.

Reliability and Validity. The CSI has been documented (Amirkhan, 1990, 1994) to have sound psychometric properties. Cronbach’s alpha coefficients for the three scales were high (.93 for Seeking support, .89 for Problem solving, and .84 for Avoidance), indicating good internal reliability. In regard to test-retest reliability, two samples were used: 87 undergraduate introductory psychology students and 92 individuals who ranged in age and other demographics from a larger community sample of individuals living in
Southern California. Respondents were administered the CSI and re-contacted 4 to 8 weeks later. Pearson coefficients for time I and time II data respectively (.83 and .77 for Problem solving, .80 and .80 for Seeking support, and .82 and .79 for Avoidance) also show adequate overall temporal reliability.

In addition to reliability, the CSI has adequate validity estimates when compared with other scales that are intended to measure coping, personality, and pathology. Amirkhan (1990) suggests that convergent validity in regard to correlations between the CSI and the Ways of Coping Checklist (WCC) by Lazarus and Folkman (1984) is somewhat problematic in that many of the items of the CSI were developed from the WCC. However, the CSI correlated highly with personality in the anticipated direction (i.e., internal control beliefs related to Problem solving) as well as depression (i.e., instrumental coping was associated with reduced symptomology and avoidant coping with increased symptomology). Overall, the CSI has also been found to be free of demographic influences, recall problems, and social desirability influences (Amirkhan, 1990, 1994) and has been documented to have high predictive validity.

The CSI has been used to measure the coping strategies in spouses of depressed patients, which included participants who ranged in age from 45-80 years of age and with an older adult sample in a study examining gender differences in coping strategies of dementia caregivers. Other evidence of the scale’s utility with an older adult sample can be found in a study (Masfregi & Picket, 1987) that utilized the Ways of Coping Checklist (Lazarus & Folkman, 1984) to examine perceived stressful situations and coping strategies employed by the elderly. Although the CSI was not specifically used in
the latter study, many of the CSI items were developed from and are similar to the Ways of Coping Checklist (Amirkhan, 1990).

**Independent Variables**

There are five independent variables in this study which are listed as follows:

1. proximity to the World Trade Center
2. degree of exposure to the traumatic event with two levels (direct versus indirect)
3. past experience(s) of traumatic event(s)
4. perceived support
5. coping with three levels (problem solving, seeking social support, and avoidance).

In regard to proximity, as aforementioned, individuals were asked on the demographics form to indicate their zip code. Given the zip code, I identified the distance in miles from the World Trade Center location and used this information as a continuous variable. Exposure was measured based on information gathered from the demographic form. Based on trauma research that has examined exposure, specific variables were found to have been particularly salient in predicting a greater stress reaction to a traumatic event. These are as follows: amount of television viewing one has been exposed to (Pfefferbaum et al., 2001), degree of loss including death or injury of a loved one or close friend, loss in the form of property damage or disruption to normal routine, and degree of direct exposure through viewing the event or witnessing its effects in some direct way (Rubonis & Bickman, 1991). Given prior categorizations of this variable (Pfefferbaum et al., 2001; Schlinger et al., 2002), exposure in this study consists of two
basic levels: direct exposure (at or near crash site on September 11th), had seen Ground Zero in person after September 11th, had seen or smelled smoke on September 11th or the following days coming from ground zero, and knowing someone who was injured or killed and indirect exposure (through television viewing). Individuals were asked to circle as many of the direct exposure variables that applied to them. I then categorized this variable dichotomously, assigning a code of “1” if they met any of the direct exposure variables and a “0” if they had only been exposed indirectly. Once individuals were coded a “0” or a “1,” they were coded further based on the amount of hours per day that they were viewing 9/11 related coverage. Coding was also conducted for the amount of hours per day individuals spent watching current news programming. Previous studies have coded these variables in different ways. Steffertbaum et al. (2001) assessed television viewing related to the Oklahoma City bombing coverage with five response options that ranged from “none of the time” to “all of my TV time.” Others (Pautz et al., 2003), in a study examining the effects of 9/11, have assessed television viewing by the number of times one has seen media images (e.g., 1 to 25 times, 25-50 times and the like). In this study, codes were made in part by categories previously used by Schuster et al. (2001) and partly by ethical judgment.

Past experience of trauma was assessed through the Traumatic Stress Schedule (Norris, 1990). On this scale, one total score was used which was the sum of number of traumatic events an individual has experienced. Perceived social support was measured through the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). On this scale, one total score was used which assessed perceived support in regard to the following areas: specific person, friends, and family. Coping was measured via the Coping
Strategy Indicator (Amir Khan, 1990). Three separate scores were yielded on this measure for this research: problem solving, seeking support, and avoidance.

Dependent Variables:

There are three dependent measures in this study, which are the three subscales of the IES-R: (1) the avoidance subscale, (2) the intrusion subscale, and (3) the hyperarousal subscale. This scale is not used to make a diagnosis of PTSD. Rather, each subscale is examined separately and interpreted based on mean item responses, with a mean score closer to 4 indicative of greater distress levels.

Hypothesis Testing

Prior to running statistical analyses that tested the four hypotheses, descriptive statistics were computed for each of the variables assessed in addition to some of the information on the demographic questionnaire. Descriptive statistics included the frequencies, means, standard deviations, and intercorrelations of the variables.

As aforementioned, there are four hypotheses in this study. The following will illustrate the hypotheses and statistical procedures used to analyze each:

Hypothesis 1. Older adults who lived in closer proximity to the attacks, were directly exposed to the attacks, have higher levels of a past trauma history, and have less perceived social support will demonstrate higher total mean scores on all subscales of the IES-R. The statistical analyses are 3 separate linear multiple regressions for each subscale of the IES-R.

Hypothesis 2. Older adults who had direct exposure, viewed more hours of 9/11 related television coverage, and are currently viewing more hours of television coverage,
will demonstrate higher total mean scores on all subscales of the IES-R. The statistical analysis used was a MANOVA to test for group differences.

Hypothesis 3. Once the amount of perceived social support is controlled for based on total scores on the MSPSS, there will be no difference in subscale mean scores on the IES-R if an individual lives with someone. The statistical analysis used is an ANCOVA.

Hypothesis 4. Once past trauma is controlled for, individuals who have higher scores on the Seeking support and Problem solving subscales of the CSI will have lower IES-R subscale scores than those with higher scores on the Avoidance subscale of the CSI. The statistical analyses are 3 separate linear regressions for each IES-R subscale.
Chapter IV
Analysis of the Data

This chapter reports the results of the statistical analyses derived from the obtained participants in this study. It consists of two sections: (a) a presentation of the descriptive statistics and (b) hypothesis testing using multiple regression, MANOVA, and ANCOVA.

Participants' Scores on Measures

This section will look in detail at the respondents' endorsements on the following items: The Impact of Events Scale Revised, The Multidimensional Scale of Perceived Social Support, the Coping Strategy Indicator, and The Traumatic Stress Schedule. Further, the means and standard deviations across these scales are presented in Table 2. The mean is a measure of central tendency, a frequently used statistic that serves as a common average or balance point for a population (Witte & Witte, 2001). The standard deviation, referred to as a measure of distance or variability, indicates the average amount by which some scores in a distribution vary from the mean (Wite & Witte, 2001). Both of these measures are important in interpreting and providing information about a data set. In this sample, mean scores on the Traumatic Stress Schedule (n=42) averaged 1.33 with a standard deviation of 1.4, with the overall total scores (number of past trauma experiences) ranging from 0–6. In regard to total perceived support, mean scores on the Multidimensional Scale of Perceived Social Support averaged 5.4 with a standard deviation of 1.3, with overall total scores for the sample ranging from 1–7. The Impact of Events Scale revised contains three separate subscales (Hyperarousal, Intrusion, and
Avoidance), which will be discussed as follows. Mean scores on the Hyperarousal, Intrusion, and Avoidance subscales averaged .90, 1.08, and 1.13 respectively, with respective standard deviations of .33, .89, and .82. Scores on these subscales are the mean item responses to distinct items and as such, scores can range from 0-4. The total scores for these subscales ranged from 0-.28 for hyperarousal, 0-.35 for intrusion, and 0-.55 for avoidance. The Coping Strategy Indicator also contains 3 subscales that can be scored separately (Problem Solving, Seeking Social Support, and Avoidance). Mean scores on these subscales averaged 19.5 for problem solving, 21.8 for Seeking Support, and 25.7 for Avoidance with standard deviations of 6.61, 5.10, and 4.45 respectively. Overall, it appears that participants in this study engaged in more avoidant styles of coping. Scores on these subscales are the sum of all items for each particular scale. In this data set, scores ranged from 11-33 for Problem Solving, 12-33 for Seeking Support, and 16-33 for Avoidance.

**Intercorrelations Amongst Primary Variables**

Moderate to small positive and negative correlations were found between a number of variables in the study (see Table 3). A moderate correlation was found \( r = .43, p < .01 \), indicating a significant linear relationship between September 11th-related television viewing and the intrusion subscale of the IES-9. As expected, the respondents who viewed more hours of 9/11 related television coverage in the days that immediately followed the terrorist attacks, tend to have more current intrusive images. There was a smaller, yet still moderate correlation found \( r = .37, p < .01 \) between September 11th
Table 2

**Means and Standard Deviations of Primary Variables**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperarousal</td>
<td>.90</td>
<td>0.83</td>
</tr>
<tr>
<td>Avoidance</td>
<td>1.13</td>
<td>0.92</td>
</tr>
<tr>
<td>Intrusion</td>
<td>1.08</td>
<td>0.89</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>19.46</td>
<td>6.61</td>
</tr>
<tr>
<td>Seeking Social Support</td>
<td>21.76</td>
<td>5.1</td>
</tr>
<tr>
<td>Avoidance</td>
<td>25.69</td>
<td>4.45</td>
</tr>
<tr>
<td>Multidimensional Scale of</td>
<td>5.42</td>
<td>1.31</td>
</tr>
<tr>
<td>Perceived Social Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traumatic Stress Schedule</td>
<td>1.33</td>
<td>1.43</td>
</tr>
</tbody>
</table>

*Note*. Hyperarousal, Avoidance, and Intrusion are subscales of the Impact of Events Scale Revised. Problem Solving, Seeking Support, and Avoidance are subscales of the Coping Strategy Indicator.

related television viewing and the hyperarousal subscale of the IES-R, indicating as expected that respondents who viewed more hours of 9/11 related television coverage, tend to experience more symptoms of hyperarousal. A moderate correlation was also found ($r = .54, p < .01$), between seeking social support and problem solving as methods of coping, as measured by the Coping Strategy Indicator. This significant linear relationship indicates that respondents who seek social support as a means of coping, may also tend to problem solve as a means of coping. This finding makes sense in this study, as problem solving and seeking support have been discussed as more positive methods of
coping in comparison to avoidance. Further, this result suggests that the subscales were studying related constructs.

Strong correlations were found ($r = .83, p < .01$) between the Hyperarousal subscale of the IES-R and the Intrusion subscale of the IES-R, between Hyperarousal and the Avoidance subscale of the IES-R ($r = .76, p < .01$), and between Intrusion and the Avoidance subscale of the IES-R ($r = .61, p < .01$). These positive linear relationships seem to indicate strong subscale intercorrelations, which may further imply that there is some redundancy in what the subscales are each attempting to predict uniquely and could be an issue of construct validity on part of the tests’ design and item construction. A moderate and unexpected correlation was found ($r = -.49, p < .01$) between the Avoidance subscale of the CSI and the Avoidance subscale of the IES-R, which reflects a negative relationship. Therefore these findings seem to indicate that these variables may be measuring different aspects of avoidance that are not fully related. Avoidance on the CSI, according to Amir Khan (1990), includes purposeful attempts at both withdrawal (i.e., “wished that people would just leave you alone”) and distraction (i.e., “daydreamed about better times” or “watched television more than usual”). It appears that the Avoidance subscale of the CSI does not include items that focus much on distraction or social diversion as a form of avoidance.
Table 3  
**Intercorrelations of Primary Variables (n = 85)**  

<table>
<thead>
<tr>
<th>Outcome Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proximity</td>
<td>1.00</td>
<td>.20</td>
<td>.23**</td>
<td>.11</td>
<td>.38**</td>
<td>0.05</td>
<td>-0.03</td>
<td>-0.08</td>
<td>0.17</td>
<td>0.09</td>
<td>0.22*</td>
<td></td>
</tr>
<tr>
<td>2. 9/11 TV viewing</td>
<td>1.00</td>
<td>.32*</td>
<td>-0.05</td>
<td>.15</td>
<td>-0.07</td>
<td>-0.1</td>
<td>-0.40**</td>
<td>0.96</td>
<td>0.37**</td>
<td>0.43**</td>
<td>0.35**</td>
<td></td>
</tr>
<tr>
<td>3. News viewing</td>
<td>1.00</td>
<td>.05</td>
<td>-1.3</td>
<td>.01</td>
<td>-0.83</td>
<td>.29**</td>
<td>-0.08</td>
<td>0.30**</td>
<td>0.23**</td>
<td>0.30**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Direct exposure</td>
<td>1.00</td>
<td>.01</td>
<td>-1.8</td>
<td>.17</td>
<td>0.00</td>
<td>.22*</td>
<td>0.15</td>
<td>0.17</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Total social support</td>
<td>1.00</td>
<td>.03</td>
<td>-0.09</td>
<td>-0.04</td>
<td>-0.13</td>
<td>0.09</td>
<td>0.11</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CSI-Problem Solving</td>
<td></td>
<td>1.00</td>
<td>.54**</td>
<td>.25*</td>
<td>-0.24*</td>
<td>-0.07</td>
<td>-0.16</td>
<td>-0.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. CSI-Seeking Social Support</td>
<td>1.00</td>
<td></td>
<td>.50**</td>
<td>-3.3**</td>
<td>2.23**</td>
<td>2.25**</td>
<td>-2.68**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. CSI-Avoidance</td>
<td>1.00</td>
<td></td>
<td></td>
<td>-1.0</td>
<td>-0.44**</td>
<td>-0.39**</td>
<td>-0.45**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Past trauma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>.02</td>
<td>.03</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. IES-R-Hyperarousal</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>.83**</td>
<td>.76**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. IES-R-Intrusion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>.61**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. IES-R-Avoidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* *p < .05 level, **p < .01.

**Assumptions of the Data**

**Hypothesis 1**

Older adults who lived in closer proximity to the attacks, were directly exposed to the attacks, have higher levels of a past trauma history, and have less perceived social support will demonstrate higher total mean scores on all subscales of the IES-R. To test this hypothesis, correlations between the variables were analyzed and subsequently a standard linear multiple regression analysis was used to predict PTSD-like symptoms as measured by the IES-R. According to Tabachnik and Fidell (2001), a multiple regression analysis is used to emphasize the prediction of the dependent variable from a
combination of independent variables. A multiple regression analysis assumes that all variables are continuous. Further, in a standard linear regression, all independent variables are entered into the regression equation at once (Tabachnick & Fidell, 2001).

In this study, the predictor variables were proximity to the attacks, direct exposure to the attacks, level of past trauma, and level of social support. The outcome variables were total scores on the three subscales of the Impact of Events Scale-Revised: Hyperarousal, Intrusion, and Avoidance. Initial analyses were conducted with 7 distinct residency variables that measured proximity to the attacks (less than 2 miles, 2.1-5 miles, 5.1-8 miles, 8.1-11 miles, 11.1-15 miles, 15.1-19 miles, and greater than 19 miles). Overall, the models did not reveal significant findings that those who lived in closer proximity to the attacks, were more directly exposed, have higher level of past trauma, and have less perceived social support, would have higher scores on the Impact of Events subscales, $F(4, 77) = .750, p = .561$, Hyperarousal; $F(4, 77) = 1.53, p = .20$, Intrusion; $F(4, 77) = .264, p = .90$, Avoidance. Considering that only one participant lived within the category of 15.1-19 miles, the category was collapsed with the 11.1-15 miles category, which created only 6 residency variables. A reanalysis was conducted with the collapsed variables, consistently failing to yield significance, $F(4, 77) = .797, p = .531$, Hyperarousal; $F(4, 77) = 1.54, p = .199$, Intrusion; $F(4, 77) = .281, p = .889$, Avoidance. Thus, hypothesis 1 was not supported. Tables 4, 5, and 6 display the simultaneous regression analyses of the independent variables on the 3 subscales of the PTSD measure.
Table 4

Regression Analysis Summary for Exposure Variables Predicting PTSD Related Symptoms-Intrusion

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity</td>
<td>-.112</td>
<td>.059</td>
<td>-.247</td>
</tr>
<tr>
<td>Direct exposure</td>
<td>.126</td>
<td>.247</td>
<td>.564</td>
</tr>
<tr>
<td>Past trauma</td>
<td>-.039</td>
<td>.073</td>
<td>-.063</td>
</tr>
<tr>
<td>Perceived social support</td>
<td>.045</td>
<td>.078</td>
<td>.064</td>
</tr>
</tbody>
</table>

Note: $R^2 = .074 \ (n=82)$

Table 5

Regression Analysis Summary for Exposure Variables Predicting PTSD Related Symptoms-Avoidance

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity</td>
<td>-.044</td>
<td>.963</td>
<td>-.094</td>
</tr>
<tr>
<td>Direct exposure</td>
<td>-.106</td>
<td>.263</td>
<td>-.052</td>
</tr>
<tr>
<td>Past trauma</td>
<td>.019</td>
<td>.378</td>
<td>.030</td>
</tr>
<tr>
<td>Perceived social support</td>
<td>.062</td>
<td>.083</td>
<td>.085</td>
</tr>
</tbody>
</table>

Note: $R^2 = .014 \ (n=82)$

Table 6

Regression Analysis Summary for Exposure Variables Predicting PTSD Related Symptoms-Hyperarousal

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity</td>
<td>-.065</td>
<td>.056</td>
<td>-.153</td>
</tr>
<tr>
<td>Direct exposure</td>
<td>.129</td>
<td>.235</td>
<td>.569</td>
</tr>
<tr>
<td>Past trauma</td>
<td>-.022</td>
<td>.070</td>
<td>-.038</td>
</tr>
</tbody>
</table>

Table 6 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived social support</td>
<td>.052</td>
<td>.074</td>
<td>.078</td>
</tr>
</tbody>
</table>

Note. \(R^2 = .040\) (\(n = 22\))

Hypothesis 2

Older adults who had direct exposure, viewed more hours of 9/11 related television coverage, and are currently viewing more hours of television coverage, will demonstrate higher total mean scores on all subscales of the IES-R. To test this hypothesis, a composite exposure variable was first created that included participants with more hours of 9/11 related television coverage, more hours of current news viewing, and participants who endorsed at least one of the direct exposure items on the demographics form. Those participants who were considered to have a greater amount of 9/11 coverage included those who watched 4-7 or greater amount of hours of coverage that week. Participants who were considered to have a greater amount of current news viewing included those who watched more than 1-3 hours per day. Thus, for completion of this analysis, two groups were ultimately created: those participants who had a higher amount of exposure and those who had a lower amount of exposure. An individual multivariate analysis of variance (MANOVA) was conducted and yielded significance, \(F(3, 81) = 5.45, p < .05\). The multivariate partial eta squared is defined as the proportion of variance of the dependent variable that is related to the factor. Eta squares of .01, .06, and .14 are generally interpreted as small, medium, and large effect sizes (Green & Salkind, 2005). Based on these guidelines, a large effect size is indicated. The goal of
MANOVA is used to evaluate the differences among groups for a set of dependent variables when there are two or more levels of independent variables (Tabachnik & Fidell, 2001). Further, it is used to test whether mean differences among groups on a number of dependent variables are likely to have occurred by chance. In this data set, the independent variable is exposure and the two groups are those who were exposed versus those not exposed. The dependent variables consist of the three subscales of the Impact of Events Scale Revised. According to Tabachnik and Fidell (2001), the advantage to MANOVA over separate ANOVAs is for greater control of a Type I error due to likely correlated dependent variables. ANOVAs, however, were automatically conducted as follow-up tests to the MANOVA and each was tested at the .05 level. There was a significant difference found between the individuals exposed ($M=1.5, SD = 0.9$) and individuals not exposed ($M=0.80, SD = 0.76$; $F(1,83) = 15.2, p < .001, n^2 = .155$) in regard to symptoms of intrusion on the IES-R. A significant difference was also found between the individuals exposed ($M=1.2, SD = 0.88$) and individuals not exposed ($M=0.72, SD = 0.74$; $F(1,83) = 6.7, p < .01, n^2 = .075$) in relation to symptoms of hyperarousal on the IES-R. There were no significant differences revealed between the individuals exposed ($M=1.3, SD = 0.87$) and individuals not exposed ($M=1.0, SD = .95$; $F(1,83) = 2.1, p = .16, n^2 = .024$) in relation to symptoms of avoidance on the IES-R. Thus, hypothesis 2 was supported for individuals with more exposure (including direct exposure, having viewed more hours of 9/11 TV coverage, and watching more current news coverage) having greater distress in the form of hyperarousal and intrusive thoughts than those who were not exposed. However, it was not supported for individuals with higher levels of exposure to experience greater symptoms of avoidance. Table 7 displays
the means and standard deviations for the 3 subscales of the IES-R based on the two different exposure groups. Table 8 displays the results of the multivariate and univariate ANOVAs.

Table 7

<table>
<thead>
<tr>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intrusion</td>
<td>Avoidance</td>
<td>Hyperarousal</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>High Exp.</td>
<td>1.51</td>
<td>.51</td>
<td>1.31</td>
</tr>
<tr>
<td>Low Exp.</td>
<td>.89</td>
<td>.76</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Table 8

<table>
<thead>
<tr>
<th>Multivariate and Univariate Analyses of variance for IES-R Subscales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Total Exp.</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Note. Multivariate F ratios were generated from Pillai’s statistic. Multivariate $\eta^2 = 3, .81$. Univariate $\eta^2 = 1, 83. ***p < .01. **p < .001.$

Hypothesis 3

Once the amount of perceived social support is controlled for based on total scores on the MSPSS, there will be no difference in subscale mean scores on the IES-R if
an individual lives with someone. To test this hypothesis, an analysis of covariance (ANCOVA) was used which failed to yield a significant finding to support this hypothesis. The general purpose of an ANCOVA is to assess if there are reliable mean differences among groups after dependent variables are adjusted for differences related to a covariate or variable that is controlled for (Tatechnik & Fidell, 2001). The ANCOVA also assumes that the covariate and the dependent variable have some type of association with each other in enhancing the value of this statistic. A homogeneity of slopes assumption was thus tested between the predictor variable and the covariate. According to Green and Salkind (2005), the purpose of this test is to evaluate the interaction between the covariate and the factor in the prediction of the dependent variable. In this analysis, the independent variable is living status with only one covariate, which is perceived social support. Analyses were conducted both with and without the covariate entered into the model. Initial analyses were conducted to examine whether there was a main effect for the model without the covariate. Eta squares without the covariate for intrusion, avoidance, and hyperarousal were .007, .050, and .030 respectively. Furthermore, there was no significance found on any of the dependent variables among people living with someone versus those living alone. Among people living with someone ($M = .99, SD = .92$) versus those living alone ($M = 1.15, SD = .87$; $F(1, 22) = 1.99, p = .167$, partial $\eta^2 = .002$), there was no significance found once perceived support was controlled for in relation to symptoms of intrusion on the IES-R. Among people living with someone ($M = .89, SD = .90$) versus living alone ($M = 1.3, SD = .91$; $F(1, 82) = 3.40, p = .07, \eta^2 = .039$), there was also no significance found once perceived support was controlled for in relation to symptoms of avoidance on the IES-R and in relation to
symptoms of hyperarousal on the IES-R among people living with someone ($M = .73$, $SD = .83$) in comparison to living alone ($M = 1.02$, $SD = .81$; $F(1, 82) = 1.93$, $p = .168$, $n^2 = .023$). Tables 9, 10, and 11 display the ANCOVA summary.

Table 9

**Analysis of Covariance of IES-R Intrusion as a Function of Living Status, with Amount of Perceived Support as the Covariate**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>$F$</th>
<th>Partial $n^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>1</td>
<td>.426</td>
<td>.426</td>
<td>.536</td>
<td>.006</td>
</tr>
<tr>
<td>Living Status</td>
<td>1</td>
<td>.158</td>
<td>.158</td>
<td>.199</td>
<td>.002</td>
</tr>
</tbody>
</table>

Table 10.

**Analysis of Covariance of IES-R Avoidance as a Function of Living Status, with Amount of Perceived Support as the Covariate**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>$F$</th>
<th>Eta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>1</td>
<td>.338</td>
<td>.038</td>
<td>.046</td>
<td>.001</td>
</tr>
<tr>
<td>Living Status</td>
<td>1</td>
<td>2.76</td>
<td>2.76</td>
<td>3.34</td>
<td>.039</td>
</tr>
</tbody>
</table>

Table 11.

**Analysis of Covariance of IES-R Hyperarousal as a Function of Living Status, with Amount of Perceived Support as the Covariate**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>$F$</th>
<th>Eta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>1</td>
<td>.035</td>
<td>.035</td>
<td>.052</td>
<td>.001</td>
</tr>
<tr>
<td>Living Status</td>
<td>1</td>
<td>1.31</td>
<td>1.31</td>
<td>1.93</td>
<td>.023</td>
</tr>
</tbody>
</table>
Hypothesis 4

Once past trauma is controlled for, individuals who have higher scores on the Seeking Support and Problem Solving subscales of the CSI will have lower IES-R subscale scores than those with higher scores on the Avoidance subscale of the CSI. To test this hypothesis, a standard linear regression analysis was used. Overall, the models revealed a moderate degree of significance, a different finding than what was hypothesized. Seeking support and problem-solving styles of coping were not found to be predictors of lower IES-R scores. In contrast, the regression revealed that individuals who have higher scores on the Avoidance subscale of the CSI, have less PTSD symptoms on all three subscales of the IES-R: \( F(4,76) = 3.12, p = .02 \), Intrusion; \( F(4,76) = 1.40, p = .03 \), Hyperarousal; \( F(4,76) = 5.72, p = .00 \), with the highest degree of significance found in relation to the Avoidance subscale. The initial analysis failed to reveal a significant effect when past trauma was included in the regression equation. As such, past trauma was taken out of the equation and analyses were conducted with the three coping subscales of the CSI as the predictor variables. The reanalysis continued to reveal that individuals who have higher scores on the Avoidance subscale of the CSI, have less PTSD symptoms on all three subscales of the IES-R: \( F(3,80) = 4.88, p = .04 \), Intrusion; \( F(3,80) = 6.66, p = .00 \), Hyperarousal; and \( F(3,80) = 8.60, p = .06 \) for Avoidance.

Tables 12, 13 and 14 display the simultaneous regression analyses of the independent variables on the three subscales of the PTSD measure without the inclusion of past trauma.
Table 12

Regression Analysis Summary for Coping Styles Predicting PTSD-Intrusion

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Solving</td>
<td>-0.066</td>
<td>0.016</td>
<td>-0.042</td>
</tr>
<tr>
<td>Seeking Support</td>
<td>-0.009</td>
<td>0.024</td>
<td>-0.052</td>
</tr>
<tr>
<td>Avoidance</td>
<td>-0.070</td>
<td>0.024</td>
<td>** -0.350</td>
</tr>
</tbody>
</table>

Note. $R^2 = .155 (n = 84, ** p < .01)$

Table 13

Regression Analysis Summary for Coping Styles Predicting PTSD-Avoidance

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>b</th>
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<tbody>
<tr>
<td>Problem Solving</td>
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<td>0.016</td>
<td>0.012</td>
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<tr>
<td>Seeking Support</td>
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<td>-0.058</td>
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<tr>
<td>Avoidance</td>
<td>-0.066</td>
<td>0.023</td>
<td>** -0.466</td>
</tr>
</tbody>
</table>

Note. $R^2 = .244 (n = 84, *** p < .001)$

Table 14

Regression Analysis Summary for Coping Styles Predicting PTSD-Hyperarousal

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Solving</td>
<td>0.007</td>
<td>0.015</td>
<td>0.058</td>
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<tr>
<td>Seeking Support</td>
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<td>-0.041</td>
</tr>
<tr>
<td>Avoidance</td>
<td>-0.081</td>
<td>0.021</td>
<td>*** -0.438</td>
</tr>
</tbody>
</table>

Note. $R^2 = .20 (n = 84, *** p < .001)$
Chapter V
Discussion

This chapter consists of four sections, which aim to integrate the study as a whole. The first section will reiterate the purpose of the study and its intended goals. In the second section, emphasis will be placed on drawing conclusions from the data analyses and making sense of the findings as they relate to previous and current bodies of literature. The third section will provide an overview of study’s limitations. Lastly, the fourth section will include a discussion of implications for practice, with suggestions for further study.

Summary and Rationale of Study

The attacks of the World Trade Center and the Pentagon on September 11th, 2001 have been indicated in the literature (Schlenger et al., 2002; Stein, 2001) as the deadliest acts of terrorism in the history of the United States. The morning of September 11th commenced as if it were any ordinary day. Individuals in the targeted areas were either at their place of employment or on their way to work and others were traveling to and from home for business, vacation, or other reasons unique to their personal lives/interests. At 8:46 that morning there was news about a plane that crashed into the North Tower of the World Trade Center. Individuals across the country seemed to be in disbelief, wondering how such a disaster could have happened. It was nearly 20 minutes later that a second plane had crashed into the South Tower of the World Trade Center, beginning alarm and nationwide panic that these crashes were more than coincidental accidents and
disturbingly, the work of terrorists. Within an hour, another plane had collapsed into the west wing of the Pentagon, and yet another that was originally headed for the White House had tragically plummeted in a field in southern Pennsylvania, confirming America's worst hypothesis of man-made terrorism. The death toll superceded even that of Pearl Harbor, killing more than 2,600 people at the World Trade Center, 125 at the Pentagon, and 256 on the four planes (National Commission on Terrorist Attacks Upon the United States, 2004). Furthermore, the attacks left approximately 3,750 individuals physically injured (Stein, 2001).

Prior to the terrorist attacks of 2001, the deadliest attacks in the United States had been the bombing of the Alfred P. Murrah Federal Building in Oklahoma City on April 19th, 1995, which killed 168 people and left more than 700 severely injured (Krug et. al., 1996; Tucker & Pfefferbaum, 2000). There were other attacks on the United States as well which included the February 26th, 1993 bombing of the World Trade Center that killed 6 individuals and injured approximately 1,000 (Ofman & Mastria, 1995). Although both attacks were devastating and involved human loss and components of fear, the events of September 11th were far more disastrous, destroying the lower Manhattan vicinity and suddenly vanishing American symbols of pride, government, and economy.

Initial reactions to the attacks included marked fear about future terrorist attacks on their home ground. A Gallup poll conducted on the day of the attack indicated that 58% of Americans reported being somewhat or very worried that they or a member of their immediate family would become the victim of a future terrorist attack (Huddy, et al. 2002). In November 2001, a poll identified that 40% of all Americans believed that they or a family member could be the victim of a future terrorist attack, and 74% said they
believed such an attack was quite likely in the near future (Pyszczynski et al., 2003). There have been numerous studies that had examined the psychological impact of September 11th (Boscarino et al., 2002; Galea et al., 2002; Pandin et al., 2003; Schlenger et al., 2002, Schuster et al., 2001) on varying populations. However, these studies were conducted in the weeks and few months after September 11th with limited or no studies that examined the impact of this traumatic event after a longer time period had elapsed. Furthermore, none of the aforementioned studies had included older adults as the primary population of interest.

As previously discussed, there is a scarcity of research that examines PTSD/levels of distress and trauma in regard to elderly individuals. Of the trauma literature that does exist, studies have focused primarily on Vietnam and World War II veterans and Holocaust survivors as they enter older adulthood. Of the disaster research in particular, studies examining the effects of trauma in the older adult population have yielded inconsistent findings. As reported in prior discussion, some studies (Solomon & Prager, 1992) have shown poor stress and coping reactions to trauma amongst older adults, whereas other studies (Bell, 1978; Bolin & Klenow, 1982; Goenjian et al., 1994; Hoerta & Horton, 1978) indicate that older adults fare just as well or even better than younger adults in recovery from trauma. Thus, findings have been equivocal. In addition to this, Averill and Beck (2000) pointed out the fact that many studies to date have involved individuals who sought out treatment and as such, have not fully represented typical community dwelling elders.

In this study, the effects of September 11th were examined in a group of 35 individuals aged 65 and older, who resided in the New York City metropolitan area. The
data was collected almost 3 years after the initial September 11th, 2001 attacks and as such, the researcher was attempting to examine whether or not individuals experience continued, more long-term stress reactions secondary to the attacks. The study examined distinct variables that have been previously identified in the stress and trauma literature as predictors of PTSD and general distress after a traumatic event or disaster. These variables include proximity to the event, direct exposure, indirect exposure (such as television viewing), past history of experiencing trauma, levels of social support, and coping style. There are many other variables that are discussed in the literature as significant in the study of PTSD/ distress after a traumatic event such as pre-morbid personality and DSM-IV diagnoses, gender differences, and current stressors which were not examined in the current study. Individuals were recruited primarily from senior centers, day/ educational programs, and assisted living facility.

To review, the rationale of the current study was to understand the impact that September 11th continues to have on individuals, particularly on older adults, as society as a whole continues to be shaped by ongoing terrorist threats, news about the war, and restrictions to some degree on aspects of our daily lifestyle. Older adults were selected as the targets of investigation, considering the number of older adults who reside in the lower Manhattan area and the fact that mental illness and distress may go undetected in this group and viewed more as medical problems with physiologically based origins (Averill & Beck, 2009). Furthermore, there is substantial evidence that older adults underutilize mental health services due to the stigma attached to mental health, unavailability of services, and the like (Salerno & Nagy, 2002). In this regard, the purpose of the study was to attempt to gain some insight into the variables that contribute
to whether or not an individual experiences distress as well as to bridge some gaps in the literature in regard to whether older adults are actually vulnerable to development of symptoms in the aftermath of a traumatic event as time passes.

**General Discussion of Results**

The results of the MANOVA bring to light the role of exposure as a significant contributor of distress amongst older adults in relation to specific symptoms of hyperarousal and intrusion. Thus, the study proved the hypothesis that older adults who had more direct exposure, watched more hours of television coverage, and currently watch more news programming have greater symptoms of hyperarousal and intrusion than individuals without such immense exposure. As previously discussed, these symptom patterns may include insomnia, anger, difficulty concentrating, hypervigilance, and increased startle response (hyperarousal) and a sense of reliving the event in which intrusive thoughts or images of the attacks are common (intrusion). This finding is important in highlighting the likely harmful impact exposure has on one’s experience after a trauma and is consistent with other studies that have found both direct (Caniço et al., 1990; Goenjian et al., 1994, Sprung, 1999) and non-direct exposure (Long et al., 1985; Pfefferbaum et al., 2001; Sone, 2000) to be salient predictors of distress/PTSD.

The fact that symptoms of hyperarousal and intrusion were supported as a significant symptom profile is consistent with the existing literature. In comparing the elderly with younger adults in response to the 1988 earthquake in Armenia, Goenjian et al. (1994) found that elderly individuals scored the highest on arousal symptoms of PTSD criteria. Wilson et al. (1989), in their evaluation of 250 survivors of Pearl Harbor, found that 65% of those surveyed reported intrusive imagery. These researchers also found that
nearly 1.4% described startle responses to loud noises. Therefore, it may appear that avoidance is less of a symptom profile amongst this age group. It could be argued that some medical illnesses, perhaps most prevalent amongst older adults such as heart disease, pulmonary disorders, and arthritis could lead to difficulties similar to some symptoms characteristic of hyperarousal (i.e., insomnia and difficulty concentrating). However, it is important to note that in the present study, 39.5% of the participants indicated no significant health problems.

The current study did not prove the hypothesis that irrespective of experiences of past trauma, older adults who tend to cope through a problem solving approach and through the ability to seek support of others in comparison to avoidance experience less PTSD related symptoms as measured by lower scores on the IES-R. However, in contrast from what was initially hypothesized, the study found that older adults who tend to cope through avoidance endorse lower subscale scores on all three subscales of the IES-R. In other words, an avoidant style of coping was found to be a significant predictor of lowered PTSD symptoms in the domains of intrusion, hyperarousal, and avoidance. This finding seems to be in contrast with findings from some other studies (Hull & Kennedy, 2012; Liverant, Hofmann, & Litz, 2004; Norris et al., 2003) that have shown the maladaptive nature of avoidance as a style of coping. However, it is critical to reiterate that the previous literature base on the differentiation of adaptive versus maladaptive coping styles is limited. Furthermore, there are so many varying conceptualizations of coping (i.e., task oriented versus person oriented, problem focused versus emotion focused, response-directed versus appraisal-directed coping) along with a multitude of theories of what comprises the concept of avoidance that it becomes difficult to
successfully interpret this finding. In general, however, it appears that acknowledging how individuals cope may provide important information about recovery in the aftermath of a traumatic event. More specifically, it may be useful to examine further the potential value of engaging in avoidance as a coping method as it relates to mass media disasters as a specific type of trauma and leads one to question if avoidance is actually a good coping strategy. This may have implications for the role of critical incident stress management debriefings that have so typically been a part of recovery relief/support efforts in the face of disasters. Perhaps, in this regard, it may be more harmful than good to have individuals attempt to discuss what they had just experienced. The fact that the coping styles of problem-solving and seeking support were not proven to lessen PTSD symptoms in this study may indicate that how individuals cope is not sufficient to reduce certain symptom patterns that may occur after a traumatic experience. Rather, problem-solving and seeking support may be thought about in conjunction with other variables such as experiencing a high degree of social support. This would be consistent with existing theories (Cobb, 1976; Cohen & Wills, 1985) asserting that social support helps to enhance adaptive coping behavior.

Although variables such as proximity, past experiences of trauma, direct exposure, and social support have been found in numerous studies to be predictors of distress, the current study did not find these variables, when placed into a regression analysis together, to predict higher levels of distress in this group of older adults in reaction to September 11th. There could be several reasons why this hypothesis may not have been supported which relates to item endorsement on the specific measures. In regard to past experiences of trauma for instance, although scores reached up to 6 (out of
9 traumatic experiences) possible traumatic experiences that had been experienced within
one’s lifetime, the average score on the TSS was 1.3. Therefore, the majority of
individuals in this study did not experience a significant number of past traumatic events
(both pre 9/11 and post 9/11) that may have been valuable in making a stronger
prediction. Similar to responses on the TSS, many participants in this study appeared to
have high levels of perceived support, as indicated by a mean score of 5.4 on the MSPSS.
In addition to general feelings of being supported, an examination of the demographic
variables shows that 81.2% of the participants are involved in at least one social activity
and for some, as many as 3 or more social activities. The degree to which individuals
have social relationships with others or feel supported has been extensively documented
to be a mediating factor for elderly in particular, in reactions to stress and trauma (Bolin
& Klenow, 1982). In this regard, the majority of individuals appear to be socially
engaged and active which may serve as a buffer to ward off distress. As such, those who
are more socially isolated were not targeted. Pertaining to exposure, although many of the
participants (n = 52, 62.7%) indicated that they had seen or smelled smoke on the day of
the attacks and others either knew someone killed or injured or had seen Ground Zero in
the aftermath, only 9 (10.6%) participants were at or near the crash site as the events were
unfolding. Based on the literature, it is logical to assume that being at or near the crash
site where one may be in imminent danger may be a stronger form of exposure that could
elicit increased fear. Thus, some of the other forms of direct exposure may not have been
as potentially threatening.

To add to the points already made, Hyer and Sohnle (2001) note a pattern of
recovery from the acute response to trauma over time, which could be as early as 3 to 5
months after the traumatic event. Others such as Rubonis and Bickman (1961) report that after a disaster, the majority of individuals do not meet criteria for psychiatric illness but rather report sleep disturbances or feeling emotionally upset afterwards. The fact that individuals did not exhibit significant distress to support the first hypothesis may point to the resiliency of individuals and older adults in particular in the face of trauma that has been supported by some research (Hyer & Sohnle, 2001).

As mentioned elsewhere in this paper, perceived support has been found by some (Diener et al., 1999, Newson & Schultz, 1996, & Patrick et al., 2001) to be more potentially valuable in buffering stress than actual levels of received support. Much of this literature focused on older adults with the rationale being that older adults may be less mobile, making actual physical contact and face to face encounters more challenging. In the current study, perceived support was controlled for and it was then hypothesized that there would be no difference in scores on the IES-R if individuals lived with someone or lived alone. Although perceived support could serve as a protective factor in warding off stress, the fact that this hypothesis was not supported may be consistent with the literature indicating that living with someone is a central factor in reducing negative outcome after a stressful event. Bolin and Klenow (1982) showed that amongst other variables, fewer PTSD symptoms were reported by persons who were married. It has also been shown that having a close companion or confidant was associated with better overall adjustment after experiencing a significant stressor.
Limitations

There are many limitations to the current study, which will be considered as follows. The first major limitation relates to the population and sampling procedure. Only 8.2% (7 of the 85 respondents) resided in the lower Manhattan area, within 1 or 2 miles of the World Trade Center attacks. It was my hope that there would be a larger sampling of individuals who lived in closer proximity to the attacks to be able to determine the role of geographical proximity/exposure as a variable in predicting outcome. There were many sites in the lower Manhattan area that did not allow me to collect data due to the fact that many of the individuals at these sites had already been contacted by other research programs (most federally funded) to complete 9/11 related research studies. In addition to this, some programs that were in particularly close proximity to the attacks had closed down temporarily (due to damage) for which I was not able to fully access those individuals who may have really been struggling with the sequelae of 9/11. Further, there were some individuals who were interested in participating in the study but who ultimately declined stating that they remain too distressed to think about and answer questions pertaining to the events of that day. As such, there may be more participants within the community that those recruited in the sample who are experiencing more significant levels of distress.

A second major limitation of the study relates to demographic variables such as ethnicity and religion. In this study, 87% of the participants (74 of the 85 respondents) were Caucasian and 66% (56 of the 85 respondents) were Catholic. As such, the findings of this study may have limited generalizability to individuals of other ethnic backgrounds and religions. Demographic figures based on the year 2000 estimates (United States
Census Bureau, n.d.) indicate that there are 54.4% Caucasians, 27.2% Latinos, 17.4% African Americans, 9.4% Asian Americans, and .5% American Indian and Alaskan natives residing in Manhattan in Brooklyn, where a modest amount of data collection took place, the estimates vary slightly as follows: 41.2% Caucasians, 36.4% African Americans, 19.8% Latinos, 7.5% Asian Americans, and .4% American Indian and Alaskan Natives (United States Census Bureau, n.d.). Although Caucasians are the largest group in both boroughs, it is a limitation that other groups who comprise a larger estimate of the population such as Latinos and African Americans were not represented in this study. It should be further noted that in the lower Manhattan area alone, Asian Americans are the largest racial group of all groups, comprising 41% of the population for that vicinity (Asian American Federation of New York Census Information Center, n.d.). The fact that only 2.4% of the participants in this study were Asian American, indicates a significant weakness, as there may be many more Asian Americans experiencing distress than what was investigated in this study. The fact that only 11 of the respondents were non-Caucasian may have been due to sampling procedures, namely the geographic locations of the sites visited based on areas that were familiar to me and also those where site directors had given permission to collect data. It may also be the fact that many ethnic minority elders may not be able to afford or do not have access to social/community programs. Furthermore, ethnic minority elders may find other methods of social activity that that offered from a structured community program, such as visiting with family members or neighbors. Thus, there may be a higher number of Caucasians in attendance at these centers. Lastly, where there may have been non-Caucasian individuals available at the sites, ethnic minority elders may be less educated and more hesitant about
research, which may impact their ability to fully understand the study and trust the researchers to engage in the project.

An additional weakness of the study also with respect to the population is the fact that it was focused on individuals 65 and older. In this case, the findings may not be generalizable to individuals of other age groups. The rationale for focusing on this specific population is that there is a paucity of research that examines the mental health of this group subsequent to a traumatic event and particularly a man-made disaster. Although the mental health of this group is important, particularly because mental health services are underutilized by older adults (Salerno & Nagy, 2002), it may have been valuable to examine stress and coping reactions in the adult population in general.

Further, there is much variation and individual differences even within the 65 and older group, as those 80 and older may differ significantly from those individuals aged 65-75. It is also the case that given today's changing trends in aging, some of the individuals in this study were still involved in full-time or for many, part-time work activities which was inconsistent with the researcher's initial view that many individuals spend more time at home, with increased isolation, and increased television viewing. There could also have been value in making a comparison between younger adults and older adults in regard to stress and coping, considering that the research findings to date have been equivocal.

Similar to problems related to sampling is the fact that many older adults were recruited from senior centers. The fact that senior centers may include individuals who are less socially isolated and have some source of social support, may skew findings in
that there may be an underrepresentation of individuals who are truly without social support.

Another limitation of the study is associated with the retrospective nature of the survey instruments. Individuals were asked on the demographic form to indicate how many hours of 9/11-related television coverage they viewed in the immediate days following 9/11. This may have been difficult for some of the respondents, particularly since data was being collected 3 years after the attacks. Harel, Katan, and Wilson (1993) discuss potential problems with retrospective memories in their study of Pearl Harbor survivors. These authors suggest that there could be distortions in memory related to the passage of time and the "cognitive reformulation of these experiences" (p. 273).

Along with the previous issue is the potential limitation of self-report measures in general. Although self-report measures are a quick and reliable means of gathering large amounts of data in a relatively brief amount of time, participants may often have the tendency to respond in a socially desirable manner. Further, self-report items may be interpreted differently by each individual and therefore may not capture the true essence of the measure. Lastly, in regard to instrumentation, many of the measures utilized in the current study are brief, with fewer items. Although briefer measures may be necessary for research with older adults, similar to the aforementioned issue, they may fail to capture more about the individuals' unique experiences.

A final limitation to acknowledge pertains to the selected independent variables in the study. There are many variables that have been found in the literature to be predictive of development of PTSD/stress reactions. Although the current study seeks to investigate a number of important variables in the prediction of PTSD symptomology, there are other
powerful variables such as pre-morbid functioning/psychiatric illness, levels of severity in regard to exposure, and current stressors, which were not included in this study.

**Implications for Future Research and Practice**

Although future research should be conducted to expand on these findings and clarify the variables at hand further, the identification of exposure as having a significant impact on levels of distress may help to shed light on how individuals could attempt to protect themselves psychologically and emotionally from the effects of negative traumatic events in the future. It appears that in combination, being directly involved in a traumatic event, viewing a lot of news programming on the event, and watching a lot of news in general could lead to greater levels of distress. Although one may not be able to prevent being involved directly in a traumatic event, individuals have control over how much television they view and what they do to shut out images of the events in a trauma's aftermath. Individuals who work at senior centers and other organizations where televisions are accessible should do whatever possible, to limit the amount of television viewing that they may be exposing others to. Although there is an interest to seek information and a curiosity that remains in individuals as social beings to understand and make sense of disasters of this magnitude, it may serve us better to limit this.

In regard to coping, this study also suggests that how we cope, may play a role in how we respond to traumatic events over time. Findings from this study suggest that trying to gain some sense of control in a situation in which one actively tries to problem solve or seek the support of others, may not necessarily lessen the degree of distress they experience which is what had previously been found to be most adaptive. In regard to the events of September 11th, a problem solving style of coping may include involving
oneself in some type of relief effort such as donating clothes or blood or joining organizations that are involved in helping rebuild the community. Seeking support may involve speaking to friends or loved ones in an attempt to process what has happened or perhaps becoming involved in some type of support group. Although organizations such as Project Liberty that provide mental health services and have a multitude of support groups and other services for individuals and their families may be particularly valuable as a means of allowing individuals to join together for emotional and physical comfort, it may also be helpful for individuals to take part in some form of mental disengagement in which they could be alone in their thoughts or attempts to distract themselves from incoming information about the traumatic experience. Furthermore, perhaps these forms of coping could assist with reductions in other outcome variables such as depression or anxiety versus PTSD like symptoms.

In regard to avenues for extended research, it would be interesting for future studies to examine how older adults would fare in comparison to younger and middle aged adults on the same variables. It may also be helpful to investigate other variables that were not included in this study but have also been found to be salient in the literature such as current life stressors. It has been documented that the prevalence of a major stressor appears to be higher in older adults and as cited by Hyer (1999), Ensel showed that 74% of community dwelling older adults had at least one major life event during the past 6 months that produced a negative impact. Thus, the study of this variable may be worthwhile. Other variables such as gender, level of received social support/activity, and co-morbid mental illness would all be noteworthy of exploration to enhance the literature base in this field. In the current study individuals were asked on the demographic form
whether they live alone or with someone. Although individuals were also asked to select their marital status, they were only coded by living alone or not alone with no true indication of whether the person they were living with was a spouse or partner versus a friend or family member. Considering the literature that exemplifies the valued role of a spouse or companion/confidant (Bolin & Klenow, 1987), it may be useful for future studies to examine support by a spouse/partner in comparison to received support from other special people in one's life.

Another interesting study may be to examine reactions of individuals in New York City in comparison to those in the Washington DC area to identify what similarities they may or may not share on some of the variables previously discussed. In keeping with this idea, is the attempt to include a control group of some kind such as individuals living in a state further removed and of further distance from New York City or Washington DC. Additionally, it may be beneficial to utilize a qualitative design in the future, as the objective measures included in the current study may not quite capture specific experiences and emotions.

Other ideas for research could include comparison studies that identify individuals who were present for and able to escape from the World Trade Center both during the 1993 bombing and the September 11th attacks with individuals who may have only been present most recently in 2001. Determining how these individuals cope and conceptualize multiple, cumulative traumas could enrich the existing literature base on trauma.

Lastly, it may be beneficial to examine the same variables that had been examined in this study but with different outcome measures. Considering what is known about the impact of September 11th thus far and the body of literature on trauma, many individuals
do not go on to develop PTSD and instead may develop depression, generalized anxiety disorder, or non-specific sleep or other behavioral difficulties. According to Stepheason (2001), there tends to be even increases in panic attacks and phobias such as being afraid of tall buildings, elevators, or airplanes. It has also been suggested in the literature (Pyszczynski, et al., 2003) for example, that individuals feel a sense of loss on some level to what the twin towers and the Pentagon symbolized as well as a sense of invasion of the only city they have known. In this regard, it may be likely that individuals are experiencing emotions such as anger rather than distress that manifests as PTSD symptoms. These symptom trajectories as sequelae would be worthwhile of examining farther in future studies.

**Conclusions**

This study attempted to shed light on the long-lasting impact of September 11th on elderly individuals in the metropolitan New York area. September 11th was a day that made history and will never be forgotten due to the large-scale destruction it imposed and ongoing information and images America was exposed to. Data from the present study indicates that the combination of higher levels of direct exposure, indirect exposure in the form of television viewing, and more hours of current news programming is positively related to increased PTSD symptoms of hyperarousal and intrusion. The data also indicated a significant but unexpected relationship between the tendency to avoid as a means of coping and lowered PTSD symptoms in all domains assessed on the IES-R. There is reason to believe that the findings from this study will continue to be applicable in learning how to deal with continued threats of terrorism in this country and may even hold value in terrorism on an international level.
Since the September 11th attacks in 2001, news coverage that relates to this tragedy has continued. News coverage ran the spectrum from initial anthrax threats in the days and months immediately following the attacks to anniversary memorial services and more recently to plans for rebuilding and discussion of the freedom tower. At the present time, coverage has shifted relentlessly to the trial of one of the plotted Al-Qaeda members and alleged suspects, Zacarias Moussaoui. There has also been the recent release of dramatic calls made from World Trade Center victims to 911 operators in their desperate last minutes. During the time of this study, the United States was involved in a war on terror in Afghanistan and continues to be engaged in a war in Iraq, all of which serve to heighten emotions and rage and bring countless individuals back to what happened on September 11th. In addition to these constant reminders of tragedy that befall us, a soon to be released major motion picture has been created which depicts the trials of the heroic passengers of Flight 93 who thwarted pilots from crashing into their intended target of the White House on that solaced morning. A second film is expected to be released in the fall of 2006 depicting the rescue efforts of the first responders who were trapped after the North Tower of the World Trade Center in New York City collapsed. Given this constant information and state of present world events, together with the approaching 5th year anniversary of the attacks from the time this study was completed, it leads one to question how individuals could not be impacted on some level from September 11th. It appears that the emotional trauma that is aroused may continue to present as an ongoing challenge for mental health professionals.
References


Appendix A

Recruitment Flyer
Are you 65 or older?
Would you like to take part in a study related to 9/11?

If you answered YES to both of these questions, you will be asked to meet with the primary researcher, a doctoral candidate in the Counseling Psychology Ph.D. program at Seton Hall University in South Orange, N.J. The purpose of the study is to investigate certain variables that relate to greater or less distress amongst older adults in their reaction to 9/11 and to examine the long-term effects of this disaster.

Participation in this study will take approximately 1 hour and will include completion of the following: (1) a Demographics form in which you will be asked to provide basic background information, (2) an Informed consent form (which confirms your understanding of the study and agreement to participate), (3) the Multidimensional Scale of Perceived Social Support (a survey to assess social support in your life), (4) the Coping Strategy Indicator (a survey to assess your general coping style), (5) the Impact of Events Scale- Revised (a survey to assess the impact 9/11 had in your life), and (6) the Traumatic Stress Schedule (a brief interview format questionnaire to examine past experiences of trauma).

Participation in this study is voluntary and you will remain anonymous in that your name will not appear on any forms/surveys conducted as part of this research. The information you complete will be stored in a locked cabinet in the researcher’s home. You will have the chance to enter a lottery to win $50.00 by participating in the study.

* If you are interested in participating in the study, please contact the primary researcher,
Maria Bartolomeo, at (917) 705-7705.

*
Are you 65 or older?
Would you like to take part in a study related to 9/11?

If you answered YES to both of these questions, you will be asked to meet with the primary researcher, a doctoral candidate in the Counseling Psychology Ph.D. program at Seton Hall University in South Orange, N.J. The purpose of the study is to investigate certain variables that relate to greater or less distress amongst older adults in their reaction to 9/11 and to examine the long-term effects of this disaster.

Participation in this study will take approximately 1 hour and will include completion of the following: (1) a Demographics form in which you will be asked to provide basic background information, (2) an Informed consent form (which confirms your understanding of the study and agreement to participate), (3) the Multidimensional Scale of Perceived Social Support (a survey to assess social support in your life), (4) the Coping Strategy Indicator (a survey to assess your general coping style), (5) the Impact of Events Scale- Revised (a survey to assess the impact 9/11 had in your life), and (6) the Traumatic Stress Schedule (a brief interview format questionnaire to examine past experiences of trauma).

Participation in this study is voluntary and you will not be putting your name on any forms/surveys conducted as part of this research. The information you complete will be stored in a locked cabinet in the researcher's home. You will receive a small gift, a picture frame, to thank you for participating in the study.

*The primary researcher is Maria Bartolomeo. If you are interested in participating in the study, please sign up at the Concierge desk.
Appendix B

Informed Consent Forms for N.Y. and N.J. Samples
Researcher’s Affiliation:
My name is Maria Bartolomeo and I am a doctoral candidate in the Counseling Psychology Ph.D. program at Seton Hall University and am collecting data for an independent doctoral dissertation for which I am the primary researcher.

Explanation of Research and Duration of Participation:
The purpose of this study is to examine the variables that may contribute to higher levels of distress amongst older adults in response to the September 11th, 2001 terrorist attacks in New York City. The research is interested in investigating how variables such as proximity to the World Trade Center, exposure to the attacks, past trauma history, social support and coping play a role in how people feel in relation to the attacks. It is anticipated that this project will take one hour of your time to complete.

Description of Procedures:
If you are over 65 years of age and decide to participate in the present study you will be asked to place your name on a contact sheet and will later be contacted by myself to arrange for a time that is convenient for you to begin the process. Your participation in the study would include completion of the following: three paper and pencil surveys, a demographic questionnaire, and a brief interview. The specific instruments that you will be asked to complete are listed as follows: (1) The Impact of Events Scale-Revised (IES-R), a 22 item survey to measure current levels of distress, (2) The Multidimensional Scale of Perceived Social Support (MSPSS), a 12 item measure of perceived friend and family support, (3) The Coping Strategy Indicator, a 33 item measure of coping style, (4) The Traumatic Stress Schedule, a 10 item interview administered scale to assess past experiences of trauma, and (5) a demographic measure of basic background information. You will also be asked to sign an informed consent form that states your understanding of the study and study procedures and your willingness to participate. The process will begin with the demographic form and the order of the remaining tests will vary from participant to participant.

Benefits of Participating in the Study:
As a participant in this study you will be eligible to enter into a drawing in which two prizes of $50 will be awarded. After completing the surveys, you will be given a small form that asks you to list your name and phone number. This will then be ensor into a pool of names and prizes will be awarded to participants whose names are drawn. The drawing form will be kept separate from your survey packet and placed in an envelope with other forms. Thus, your survey responses will continue to remain anonymous. At the completion of the data collection phase, I will randomly draw two names from the envelope and call the winners to award them their prizes (which will be sent by money order).

[Signature]
Date: Feb 15, 2005

[Stamp]
Seton Hall University

[Stamp] APPROVED
Voluntary Participation:
Participation in this study is completely voluntary. Should you choose not to participate, you may do so without penalty. You may also withdraw from participating at any point during the study if you so choose.

Protecting Your Identity:
As a participant in this study, you will remain anonymous and any information generated will be analyzed without use of your name or other identifying information. Therefore please make sure you do not place your name on any of the materials in the packet. The information obtained through the questionnaires will be analyzed as aggregate data only.

Data will be Kept Confidential:
The primary researcher will be the only person having access to your identifying information. Your data will be securely stored in a locked cabinet within the researcher’s home to preserve confidentiality.

Anticipated Risks or Discomforts:
There is no intended/anticipated risk for individuals who participate in the current study. However, considering the questions are asking you to think about the September 11th terrorist attacks as well as any past experiences of trauma, participation in this study may arouse strong emotion for some individuals and potentially some feelings of discomfort. Should you experience distress, you do not have to continue. If you experience distress during or after completing the project, the researcher has attached referrals for agencies that provide mental health services.

Contact Information:
If you have any questions or would like a copy of the results, please contact the primary researcher by phone at (917) 761-9451 or via e-mail at bartolma@shu.edu or the dissertation advisor for this research, Dr. Laura Palmer at (973) 275-2740 by phone or Palmerla@shu.edu via e-mail. Should you have further questions about the rights of participants, please contact the chairperson of the IRB, Office of Grants and Research services at Seton Hall University at (973) 275-2977.

I have read the material above, and any questions I asked have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time.

APPROVED
FEB 15 2005
SETON HALL UNIVERSITY
I have read the material above, and any questions have been answered to my satisfaction. Consent to participate is indicated by signing the form below.

Participant’s Name ___________________________ Date ______________

Please sign and return this consent form. The other set is for you to keep for your records. Thank you.
Researcher's Affiliation:
My name is Maria Bartolomeo and I am a doctoral candidate in the Counseling Psychology Ph.D. program at Seton Hall University and am collecting data for an independent doctoral dissertation for which I am the primary researcher.

Explanation of Research and Duration of Participation:
The purpose of this study is to examine the variables that may contribute to higher levels of distress among older adults in response to the September 11th, 2001 terrorist attacks in New York City. The research is interested in investigating how variables such as proximity to the World Trade Center, exposure to the attacks, past trauma history, social support and coping play a role in how people feel in relation to the attacks. It is anticipated that this project will take one hour of your time to complete.

Description of Procedures:
If you are over 65 years of age and decide to participate in the present study you will be asked to place your name on a contact sheet and will later be contacted by myself to arrange for a time that is convenient for you to begin the process. Your participation in the study would include completion of the following: three paper and pencil surveys, a demographic questionnaire, and a brief interview. The specific instruments that you will be asked to complete are listed as follows: (1) The Impact of Event Scale-Revised (IES-R), a 22 item survey to measure current levels of distress, (2) The Multidimensional Scale of Perceived Social Support (MSPSS), a 12 item measure of perceived friend and family support, (3) The Coping Strategy Indicator, a 33 item measure of coping style, (4) The Traumatic Stress Schedule, a 10 item interview administered to assess past experiences of trauma, and (5) a demographic measure of basic background information. You will also be asked to sign an informed consent form that states your understanding of the study and study procedures and your willingness to participate. The process will begin with the demographic form and the order of the remaining tests will vary from participant to participant.

Benefits of Participating in the Study:
Everyone who attempts to complete the study will receive a small thank you gift as a token of appreciation for your time and effort. The gift will be a picture frame and will be distributed at the conclusion of your time spent participating in the project.

Voluntary Participation:
Participation in this study is completely voluntary. Should you choose not to participate, you may do so without penalty. You may also withdraw from participation during the study if you so choose. This research is being conducted under the auspices of Education and Human Services, Department of Professional Psychology and Family Therapy, TEL 973.353.9401, 400 South Orange Avenue • South Orange, New Jersey 07079-0455.

APPROVED
FEB 15 2005
SETON HALL UNIVERSITY
Protecting Your Identity:

Please make sure you do not place your name on any of the materials in the packet. The information obtained through the questionnaires will be analyzed as aggregate data only.

Data will be Kept Confidential:

All forms/surveys will be kept confidential and the primary researcher will be the only person having access to your identifying information. Your data will be securely stored in a locked cabinet within the researcher’s home to further preserve confidentiality.

Anticipated Risks or Discomforts:

There is no intended/anticipated risk for individuals who participate in the current study. However, considering the questions are asking you to think about the September 11th terrorist attacks as well as any past experiences of trauma, participation in this study may arouse strong emotion for some individuals and potentially some feelings of discomfort. Should you experience distress, you do not have to continue. If you experience distress during or after completing the project, the researcher has attached referrals for agencies that provide mental health services.

Contact Information:

If you have any questions or would like a copy of the results, please contact the primary researcher by phone at (917) 761-9451 or via e-mail at bartolma@shu.edu or the dissertation advisor for this research, Dr. Laura Palmer at (973) 275-2740 by phone or Palmerla@shu.edu via e-mail. Should you have further questions about the rights of participants, please contact the chairperson of the IRB, Office of Grants and Research Services at Seton Hall University at (973) 275-2977.

I have read the material above, and any questions have been answered to my satisfaction. Consent to participate is indicated by signing the form below.

Participant’s Name ___________________________ Date __________

Please sign and return this consent form. The other set is for you to keep for your records. Thank you.
Appendix C

Demographic Form
**Demographic Background Information**

*For each item, please fill in the blank or circle the item that best describes you.*

1. Age: __________

2. Gender: Male  Female

3. **Race/ Ethnic background** (circle all that apply)
   - Asian/ Pacific Islander
   - African American/ Black
   - Native American
   - Other (please indicate)
   - Asian/ East Indian
   - Afro- Caribbean
   - White/ Caucasian
   - Hispanic/ Latino (a)
   - African

4. **Income Level** (please circle one)
   - Less than $15,000
   - $15,000-$30,000
   - $30,100-$65,000
   - Above $65, 100

5. **Religious Affiliation** (please circle one)
   - Jewish
   - Buddhist
   - Other (please indicate)
   - Catholic
   - Muslim
   - Atheist
   - Protestant
   - Hindu
   - None

6. **Educational Status** (please circle one)
   - High School Graduate
   - Bachelor’s Degree
   - Masters Degree
   - Advanced Graduate Degree
   - Some College
   - Associate Degree
   - Other (please indicate)

7. **Residency** (please list your address)

8. **Living accommodations** (please circle one)
   - Do you currently live alone? Yes  No
   - Please specify your current living arrangement
     - Assisted living/ in home or apartment
     - With spouse
     - With other family member(s)
     - Other

9. **Where were you at the time of the attacks on September 11th, 2001?**


10. Direct Exposure to 9/11 (please circle all that apply)
   - was at or near crash site on 9/11
   - had seen ground zero in person after 9/11
   - could see or smell smoke coming from lower Manhattan that day
   - know a friend or loved one who was injured or killed in the 9/11 attacks

11. Television viewing (please circle the best choice)
   On September 11th and the remainder of that week, estimate how many hours per day you spent watching TV on 9/11 coverage:
   Less than 1 hour  1-3 hours    4-7 hours
   8- 12 hours       13 hours or more

12. Are you a Holocaust Survivor?  Yes  No

13. Have you ever served in the military in combat?  Yes  No

14. Current Involvement in Structured Activities: (circle all that apply)
   Senior center  local YMCA  Knights of Columbus
   Part time work  Full time work  Volunteer Work
   Education program
   Other (please indicate) ____________________________

15. Please list any medical conditions you may be diagnosed with at the current time.

16. How many hours of news programming do you currently watch per day?
   Less than 1 hour  1-3 hours    4-7 hours
   8- 12 hours       13 hours or more

17. How many hours do you currently spend reading about the news per day?
   Less than 1 hour  1-3 hours    4-7 hours
   8- 12 hours       13 hours or more