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9/11 Exposure and Parental Monitoring

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by

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Abstract

Incidents of mass violence, including the World Trade Center (WTC) attacks, affect all of those who are involved. Experiencing this traumatic event can produce lasting psychological effects. This includes Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD), and symptoms affect the individual and their family. The goal of this paper is to investigate the effects of 9/11 exposure on parental monitoring, and how depression and anxiety are associated with these effects. This research utilizes data collected from a Cohort of Evacuees, First Responders (FRs), and non-exposed Controls. Results revealed that moderate 9/11 exposure is associated with increased parental monitoring; while, depression is associated with decreased parental monitoring. The results, limitations, and future directions are discussed.

Keywords: 9/11, mass violence, parental monitoring, depression, anxiety

9/11 Exposure and Parental Monitoring

The attacks on the World Trade Center (WTC) in New York City on September 11, 2001, have affected all Americans in some manner. The attacks were so violent and traumatic, that the events and images of 9/11 are permanently etched in our memories. The experience of that day varied from having it happen to you directly, to hearing about how it affected loved ones, to witnessing the violent acts via media reports. Some were in the Ground Zero area, at work, home, or school. Others were in the World Trade Center buildings and had to be evacuated. Some waited for hours, or even days to find out about their loved ones. We all witnessed the tragedies unfold via media and television reports. The 9/11 attacks are often described as surreal, which points to the lack of reference point people possessed for processing such a traumatic incident. Regardless of how one may have experienced 9/11, it is safe to say the impact of that day resulted in some lasting effects.

First Responders (police, firefighters, and emergency medical technicians) who were called to the scene on 9/11 are amongst the brave individuals who ran toward Ground Zero to help, while most fled. They risked, and gave their lives, to save others. Even though First Responders are trained to encounter different types of traumatic scenarios, no training could have emulated what they encountered on 9/11. Such an event can lead to long-term psychological and physiological effects for those who responded that day. This direct exposure can lead to psychiatric disorders. As demonstrated via many studies, exposure to trauma is often associated with anxiety disorders, depression, and Post Traumatic Stress Disorder (PTSD) (Breslau, 2009; Caramanica et al., 2014; Duarte, 2006; Hoven 2005; Hoven et al., 2009; Geronazzo-Alman, 2017).

In 2001, this type of event was uncommon, it was surreal. Unfortunately, incidents of mass-violence have become more frequent. There are active shooters that target hospitals, offices, concerts, and schools. In the United States, 113 people have been injured or killed in school shootings in 2018, which is the highest number of annual incidents on record (Coughlan, 2018). It is increasingly important to implement interventions that mediate the psychological and physiological outcomes that result from experiencing mass-violence.

A longitudinal study examined the prevalence of PTSD, depression, and the comorbidity of these two disorders, in those exposed to 9/11 to see how these disorders persist over time (Caramanica, Brackbill, Liao, & Stellman, 2014). This research utilized ($n = 29,486$) respondents from the World Trade Center Health Registry. The results discovered that 10-11 years after 9/11/01, (15.2%) of respondents had PTSD, (14.9%) had depression, and (10.1%) had both. The researchers found that comorbid PTSD and depression were associated with being highly exposed to the 9/11 attacks (Caramanica, et al., 2014). This affects the individual as well as their family, including the children. This can result in disruptions to the child's behavior and development.

What about the children of those who work as First Responders? Do the dangerous and stressful jobs of their parents result in an indirect exposure that causes the onset of similar disorders? Do these diagnoses persist into adulthood? These are the research questions which the "Parental Experiences and Children's Well-Being Study" (PI: Christina Hoven) aimed to explore. The study endeavors to shed light on the effects of indirect exposure to violence on mental health, as experienced by the children of First Responders and (WTC) Evacuees (Hoven et al., 2009).

The "Parental Experiences and Children's Well-Being Study" (aka, "Children of First Responders and Evacuees Study") was the first of its kind. It was unique in that it examined the effects of indirect exposure to mass violence on children (Hoven et al., 2009). Previous work has focused on a child's experience with a singular traumatic event. This research takes the perspective of how a traumatic occurrence plays a role in the child's life as a whole. The children of First Responders are of interest because their parents encounter trauma and stress as a consequence of their jobs. There is an emphasis on the type of event experienced. Incidents of mass violence are distinguished from those that affect victims on an individual basis. The inherent social nature of being involved in a mass violent incident may contribute to the development of psychopathology in a unique manner (Hoven 2005; Hoven et al., 2009). The First Responders and evacuees who were present at the WTC on 9/11, comprise the exposed sample in this paper.

Findings from the "World Trade Center-Department of Education study" (WTC DOE) included a representative sample of NYC public school children who were evaluated six months after 9/11/01 ($N = 8,236$). The WTC DOE Study examined the prevalence of probable mental disorders after the WTC attacks in 2001. The results revealed that 28.6% of children from this sample, had one or more probable anxiety/depressive disorders (Hoven, 2005). The data suggested there was a relationship between level of exposure to 9/11, and the likelihood of anxiety/depression. The results also supported the presence of a relationship between a family exposure and the child's mental health (Duarte, et al., 2006; Hoven, 2005; Hoven et al., 2009). Children whose parents were exposed to the WTC attacks were at higher risk of (probable) mental health disorders than those who were not exposed.

Further examination of this sample found that children of EMTs had the highest rates of probable PTSD (Duarte, et al., 2006). Duarte, et al., (2006) concluded that probable PTSD risk of EMT children, as compared to children without an FR parent, was explained by differences in the amount of exposure to the WTC attacks.

The "Children of First Responders and Evacuees Study" was a longitudinal study, with two waves of data collected, and a third wave (aka The WTC Family Study; PI: Hoven) being collected. Prior research has not differentiated how psychopathology manifests itself following mass violence as compared to an individual's exposure to trauma. Another limitation of the previous work is that it only measured PTSD (Hoven et al., 2009). This research examines the potential for other disorders that are comorbid and associated with being exposed to trauma, such as other anxiety disorders and depression.

Children whose parents are exposed to trauma are at high risk for psychopathology, independently of their own exposure (Duarte, et al., 2006; Hoven et al., 2009; Kiliç, Özgüven, Sayil, 2004). Some possible explanations for this association include: biological factors, impaired parenting due to mental health issues, modeling of parent's behavior, and socioeconomic status. The parental exposure to trauma may impact the parent's mental health, which results in impaired parenting, thus affecting the child's mental health (Duarte et al., 2006; Hoven et al., 2009; Kiliç, Özgüven, Sayil, 2004). First Responders (FRs) are faced with violence, danger, and trauma as a product of their jobs. They can experience daily exposure, as well as the potential to be exposed to a major event, such as the WTC attack on 9/11. Findings from the First Responders of the two waves of the "Children of First Responders and Evacuees Study" found that their work-related cumulative exposure was associated with PTSD (Geronazzo-Alman, et al., 2017). This distinct sample is the focus of this research for these reasons.

The main goal of the "Children of First Responders and Evacuees Study" was to characterize the longitudinal effects of parental exposure to stress and trauma on their children (Hoven et al., 2009). The children whose parents were exposed to 9/11 were compared to community non-exposed controls. The hypothesis states: "parental exposure to large-scale violent events may constitute, because of its shared qualities-a source of trauma for children even in the absence of direct child exposure or parental behavior change" (Hoven et al., 2009, p. 99).

From this research, one could speculate how mass-violence affects parenting behaviors. This paper aims to differentiate the parenting behavioral effects of mass-violence exposure, and how anxiety and depression affect parental monitoring behavior.

All parents monitor their children. There are parents who take an overprotective or excessive interest in the life of their child. The parent's intention is to protect, and to foster a positive outcome for the child. Is this the effect? Does the child learn to appropriately cope with life's challenges once on their own? Conversely, there are many potential detrimental effects for a child whose parent does not monitor enough. With an absentee parent, the child will be more likely to engage in risky, deviant, and delinquent behaviors (Kerr & Stattin, 2000). This could have long-term effects on the entire family. Simply letting the child do as they please, without consequence, does not foster healthy development (Hayes, Hudson, & Matthews, 2007). So, how does the parent monitor effectively? How does this differ from one family to the next?

There has been much research on parental monitoring to define it and to discover the effects of the various degrees of monitoring behavior (Hayes et al., 2007). The psychological construct of parental monitoring encompasses a variety of parenting practices. These include supervision, awareness, concern, tracking of the child's behavior, and communication (Hayes et al., 2007). Poor monitoring has been associated with antisocial behavior (Hayes et al, 2007; Kerr

and Stattin, 2000). Hayes et al. (2007) cite child behaviors that are associated with poor parental monitoring. These are substance, tobacco, and alcohol use, increased sexual risk taking, and decreased safe sex practices. Research also finds that poorly monitored adolescents report lower self-esteem, poor academic achievement, and depressive symptoms (Hayes et al., 2007).

There are two main definitions of monitoring that are presented in the literature. The original definition put forth by Dishion & McMahon (1998) was a broad term. It includes parental cognizance of the activities of the child, and letting the child know that the parent is aware of, and concerned about, the child's activities (Dishion & McMahon, 1998). The researchers assert that the monitoring variable is important as a changeable protective and/or risk factor, and that it can be targeted for intervention. The important aspect of this definition of parental monitoring is that it defines the parental side of monitoring. This conceives monitoring in a uni-directional manner, from parent to child.

The second definition of monitoring was developed through research by Kerr & Stattin (2000). They also propose that the definition of monitoring contains parental knowledge of the child's activities. Importantly, Kerr & Stattin (2000) argue that parental knowledge hinges on disclosure from the child. This definition is narrower than the original, and it concentrates on parental knowledge of the child's free-time behavior (Kerr & Stattin, 2000). Kerr & Stattin (2000) argue that an understanding of monitoring is not based in parental behavior, but instead focuses on the elements that regulate disclosure from the child.

This alternative definition includes the parental, as well as, the child aspects of monitoring. It conceptualizes monitoring in a bi-directional manner. This is a better representation of the real-world parent-child dyad. The problem with the Dishion & McMahon (1998) definition is that the child could be participating in risky behaviors without the parent's

knowledge. Without including the child's disclosure, these aspects would not be taken into consideration. In this paper, the parental responses to questions about monitoring are utilized. The parent's perspective of child disclosure is included. However, the child's perspective of monitoring and disclosure is not part of the analyses. This is one potential limitation.

There are studies that use the term parent-child relationship. This concept outlines the aspects of monitoring that include communication, trust, disclosure, and family conflict (Hayes et al., 2007). Hayes et al (2007) argue that to improve monitoring, the parent-child relationship must first be addressed. Their research proposes a process-monitoring model. This construes monitoring as an interactive process with the parent-adolescent relationship embedded within monitoring (Hayes et al., 2007).

The different definitions of monitoring have led to a debate in the literature about whether it is a construct driven by the parent or the child (Hayes et al., 2007). For parts of the analyses, the parent-child relationship is part of the parental monitoring scale used in this paper. There are questions pertaining to communication, including child disclosure, and they fall under the parent-child relationship concept. These are in line with the Hayes, et al., (2007) definition of the construct. There are questions pertaining to monitoring that represent the Dishion & McMahon (1998) definition included as well. Scales that include both sides of the debate are included in the analyses.

Those who were exposed directly to 9/11 may have made changes to their parenting behavior. Mass-violence exposure could have resulted in a conscious, or unconscious alteration impacting how parents monitor their children in the post 9/11 world. Research points to the necessity for increased parental monitoring when there is escalated risk in the environment (Dishion & McMahon, 1998). This supports the idea that after mass-violence, the setting dictates

the need for more monitoring. This is what this paper endeavored to discover. How does mass-violence influence parenting behavior?

In addition to mass-violence, this paper examines how symptoms of depression and anxiety modify parenting practices. Those who experience anxious and depressive symptoms typically endorse disruptions to their daily functioning. How does this play out in the home? How do these parents monitor their children? Does this differ from parents who are likely well, and don't endorse symptoms of depression and anxiety?

The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association [APA], 2013) outlines the diagnostic criteria for Major Depressive Disorder (MDD). The DSM-5 requires the presence of 5 or more depressive symptoms, during a two-week period which result in distress, or disruption to functioning. Some of the symptoms include; sadness, hopelessness, diminished pleasure, changes to weight and sleep, fatigue, and suicidal thoughts (APA, 2013).

The Centers for Disease Control and Prevention (CDC) points out that depression impacts society immensely. The CDC posits that it results in more functional impairment than many other chronic diseases, such as arthritis and diabetes (Brody, Pratt, & Hughes, 2018). During 2013 - 2016 the prevalence rate for depression was (8.1%) for American adults over 20 years old (Brody, et al., 2018). The CDC (2018) reported depression rates were 5.5% for men; while women were at 10.4%, almost twice as high. (Brody, et al., 2018). The CDC (2018) found that out of those who reported depressive symptoms, (80%) expressed some difficulty with social, work, and home activities due to their depression.

Given this data, parents who have any symptoms of depression would exhibit some disruption to their role as a friend, a spouse, and a parent. Depression is a disorder that affects all

those who interact with the individual. Kessler conducted research that examined the societal costs of MDD. He used epidemiological results from large scale surveys conducted by the World Health Organization (WHO), and other organizations (Kessler, 2013). Multiple studies documented significant associations of negative parenting behaviors and parental depression (Kessler, 2013). The research found that a depressed parent engages in maladaptive interactions with the child, that hinder development. This was most noticeable in the parents of young children, but it was also seen across the age ranges. The WHO positions MDD as the fourth leading cause of disability in the world, and it is projected to move into second place by 2020 (Kessler, 2013). For individuals ages 15 - 44, MDD is the leading cause of disability in the United States (NIMH, 2017).

It is evident through the research that depression symptoms affect the individual's ability to perform effectively across multiple roles (Brody et al, 2018; Kessler, 2013). Parents utilize socialization with the child as an important aspect of monitoring (Hayes et al., 2007). Hayes et al. (2007) describe a monitoring exchange beginning when parents ask their child how their day was. This work also lists avoidance as one of the clinical markers of poor parental monitoring. The depressed parent may not have the motivation to ask the child such a question, and instead avoid the social interaction altogether. If they do ask, they may not respond in a healthy manner. This creates strain on the relationship and discourages the child from future disclosures. The parent's psychological adjustment is associated with their ability to monitor (Hayes et al., 2007). Thus, it is important to evaluate, and take into account, clinical symptoms to understand the perspective of the parent's monitoring behavior.

In 2016, 9% of American adolescents ages 12 – 17, reported a major depressive episode that was accompanied with severe impairment (NIMH, 2017). McManama-O'Brien, Hernandez,

& Spirito (2015) identified depressed mood in adolescents as a risk factor for drinking, and they

found that parental monitoring is a protective factor for adolescent drinking. Their research

demonstrates how parental monitoring moderates the association between adolescent depressed

mood and drinking. The results revealed a significant interaction between monitoring and

depressed mood (McManama-O'Brien, et al., 2015). Low levels of parental monitoring were

associated with high levels of adolescent depressed mood and more adolescent alcohol-related

problems.

      The McManama O'Brien, et al. (2015) research emphasizes the protective role that

effective monitoring can have. Additionally, their research points to the importance of parental

well-being. If the parent is depressed, they cannot appropriately monitor their children. Also, the

child models the parent's depression symptoms. This provides support for the need to intervene,

so that unhealthy behaviors are not perpetuated over time.

      Depression can have detrimental effects on the individual and their family. It is important

to acknowledge these effects due to how often depression exists, and persists, across many

populations. Other commonly experienced mental health symptoms can also impair functioning

and development. Stress, and its cohort anxiety, are feelings we are all familiar with. Stress

affects us in some way on a daily basis, from the time that we wake up in the morning, to when

we go to bed, and even while we sleep. Stress is unavoidable. Stress and anxiety can have

detrimental physiological and psychological effects.

      Stress is not a modern invention. Our caveperson ancestors had daily stressors, most of

which threatened their survival. Today, we may experience an event that is life threatening, but

typical daily stressors encompass psychological stress. In fact, much of our stress these days is a

result of the anticipation of stress (Sapolsky, 2004). Unfortunately, no matter what type of stress

it is, the effects on the body and the mind are the same. So, instead of stress saving our lives, as it did with cavepeople, the stress itself becomes the threat to our survival.

A stressor is a demand being placed on the system, and the stress response is the body's reaction to this demand (Sapolsky, 2004). The stress response involves the entire body and is coordinated by the brain. The brain and body are comprised of multiple systems that are delicately balanced, each in their own unique way. This concept is termed allostasis. The body takes its orders from the brain and makes changes to the whole system, to maintain allostasis (Sapolsky, 2004). There are different set points for each system, and the optimal set points can adapt, depending on different conditions. The stress response is the body endeavoring to reestablish allostasis (Sapolsky, 2004).

This is helpful if your physical safety is being threatened, because you are now mentally and physically prepared to appropriately respond to save your life. However, more often than not, we activate the stress response due to psychological stressors. Over the course of our day we are exposed to recurrent stressors and this keeps reactivating the sympathetic response (Sapolsky, 2004). This means our body is being taxed nonstop resulting in negative health effects. Sapolsky (2004) describes some of these health effects as physiological, including cardiovascular disease, heart attacks, obesity, and diabetes. He also depicts the psychological impacts that often result in the diagnoses of depression, anxiety, panic disorders, and PTSD.

The *DSM-5* (5th ed.; DSM–5; American Psychiatric Association [APA], 2013) diagnostic criteria for Generalized Anxiety Disorder (GAD) require a presence of excessive worry and anxiety, about several events, for most days, for a minimum of six months. This is experienced in such a way that the individual has difficulty controlling the worry. The DSM-5 requires that the symptoms cause distress and impairment across important areas of functioning. The symptoms

include; fatigue, disturbances to sleep, restlessness, difficulty concentrating, muscle tension, and

irritability (APA, 2013).

Roughly 40 million adults, (18.1%), suffer from an anxiety disorder in a given year in the

United States (APA, 2018). Approximately (5.7%) of adults in the U.S. have experienced GAD

at some point during their lives (NIMH, 2017). The NIMH (2017) described that (32.3 %) of

adults with GAD had severe impairment, and (44.6 %) had moderate impairment. For American

adolescents ages 13 – 18, an estimated (2.2 %) had GAD (NIMH, 2017). It was indicated across

all these data that the prevalence rates for females were typically twice that of males.

If a parent has a stressful day, they likely carry this anxiety into the home. This anxiety

begs for an outlet (Sapolsky, 2004). Unfortunately, the outlet often becomes those who are

closest, including family and friends. When the parent begins a monitoring exchange by asking

the child about his/her day, parental anxiety may result in a curt, or inappropriate response. In the

future, the child may not be as willing to disclose, after such a response. In addition, an anxious

parent can be very controlling due to excessive worry or fear. The child may feel they cannot

disclose everything to prevent the parent from worrying more, or to prevent them from imposing

stricter rules. The child likely will edit their future disclosures.

If the child models parental anxiety, this will set them up to process life events in an

anxious way. Platt, Williams, & Ginsberg (2017) found that there was an association between

dysfunctional parenting and child anxiety. The results described that anxious parental rearing,

parenting stress, and dysfunctional interactions mediated the association between stressful life

events and the severity of the child's anxiety (Platt et al., 2016). The maladaptive parenting

behaviors set the child up for difficulties in coping with their own stress. Without intervention,

this behavior could potentially continue for generations.

The impact of anxiety on parenting likely affects many families. It is the most common mental illness (Anxiety and Depression Association of America, 2018). Anxiety is often co-morbid with depression (APA, 2018). Therefore, it is important to study how symptoms of anxiety and depression affect the individual, and their family. It has been demonstrated in the literature that parents who experience depression and anxiety can negatively impact the child's development. Maladaptive parental monitoring behavior could result in overprotectiveness. The child could have no stress inoculation and would not cope effectively when presented with a stressful life event. Conversely, little or no monitoring exposes the child to too much stress. To improve the family environment, it is necessary to target maladaptive parental behaviors through intervention.

One of the goals of this paper is to illuminate how the symptoms of anxiety and depression are associated with changes in parental monitoring. This will help to pinpoint which type of intervention would be beneficial.

Exposure to mass violence presents us with unique challenges. Unfortunately, it has become more commonplace since 9/11/01. The Advanced Law Enforcement Rapid Response Training (ALERRT) Center and the Federal Bureau of Investigation (FBI) described active shooter incidents for 2016 and 2017. There were 50 incidents, in 21 states which resulted in 943 casualties, and 13 law enforcement officers killed (ALERRT & FBI, 2018). The FBI & ALERRT (2018) described 20 of these incidents as mass killings. These data illustrate the importance of discovering the short-term, and long-term effects this type of mass violence exposure can have on parents, parenting, and the child. Research on parental monitoring and mass-violence is necessary to identify the issues, and to intervene effectively. Specific immediate and long-term interventions for mass trauma could help promote resilience.

From the review of this literature, the research questions and predictions were developed. First, is 9/11 exposure associated with increased parental monitoring? The prediction states that 9/11 exposure is associated with increased parental monitoring. Second, is parental depression and anxiety associated with increased parental monitoring? The prediction states that parental depression and anxiety are associated with increased parental monitoring.

Method

This study utilizes baseline data from the "Children of First Responders and Evacuees Study" (PI: Hoven) conducted at the Global Psychiatric Epidemiological Group (GPEG), at Columbia University Medical Center. Their research focused on the effects of familial exposure to violence on child's mental health, as experienced by the children of First Responders and WTC evacuees (Hoven et al., 2009). This longitudinal investigation included two waves of data, the baseline and follow-up, 12 months apart. Data collection is currently ongoing in the "World Trade Center Family Study (Principal Investigators: Christina Hoven & Lupo Geronazzo-Alman). The data are collected via in-depth, in home, personal structured interviews.

Participants

Participant Sampling and Recruitment

Participants include 9/11 Evacuees and First Responders (EMTs, fire fighters, police officers, and non-traditional FRs) from the New York City metropolitan area, who were evacuated or participated in the rescue and recovery efforts from the WTC attacks on 9/11/01 (Hoven et al., 2009). The 9/11 exposed sample were recruited from the World Trade Center Health Registry (WTCHR). The registry contained 71,000 individuals, the largest of its kind in the United States. After the consent to contact was obtained, the families were called to further explain the study, determine eligibility, and participation.

To be eligible for the study, the family included an FR or WTC Evacuee, and a child living at home who was between the ages of 9-16 years old. If more than one child fits the criteria, a Kish table was used to randomly select the child (Hoven et al., 2009). The Kish method ensures random selection of household members for use in survey research (Kish, 1949). Kish (1949) designed a grid that assigns numbers to each member of the household based on age. With this method each survey participant has an equal chance of being selected. For this study, the Kish method was only used to select the index child when there was more than one eligible child residing in the home.

The FR or Evacuee families included an index child (9-16 years old), an FR parent, and in most cases the spouse/partner of the FR. The non-exposed control child was matched to the child on age, gender, and neighborhood, and neither parent may have had 9/11 direct exposure (Hoven, 2009).

First Responders and WTC Evacuees from New York City (Index Group)

Those included identified as a First Responder, a WTC or Ground Zero Area Evacuee, had a child in the appropriate age range, and resided within a 100-mile radius of Ground Zero. Ground Zero is the area located south of Canal Street in Manhattan. This area was designated as the Ground Zero Area by the Office of Emergency Management (OEM).

The study families included WTC and Ground Zero resident Evacuees, EMTs, firefighters, police officers, and non-traditional First Responders. WTC Evacuee participants included those who were evacuated from the WTC, or other buildings in the area. Ground Zero resident Evacuees are those who resided south of Canal Street on 9/11/01. Non-traditional FRs included individuals who were iron workers, sanitation workers, and construction workers who

worked on the pile, and assisted in the recovery efforts. The FR parent, spouse/partner, and the

index child are all interviewed via survey.

Control Group

The parents of the controls were those who had no direct 9/11 exposure. Respondents

were matched by age and gender to an (index) child living in the same geographic area. The

InfoUSA database was utilized to identify possible households (Hoven et al., 2009). The research

team enumerated (called/visited and obtained inclusion/exclusion criteria information) the list

until a match was found. Next, they invited the family to participate.

Procedure

Field-based structured diagnostic interviews were administered to both parents and the

child. Each interview is conducted in person and individually. The interviews are conducted by

GPEG research staff. Generally, the interview questions were designed to assess the mental

health of the respondents. Factors related to exposure to violence and stress are also examined

(Hoven et al., 2009). This included exposure to the WTC attacks. Questions pertaining to the

assessment of the relationship between parent and child were also in the interview (Hoven et al.,

2009). Additionally, both parents and the index child were asked demographic questions.

During the baseline wave, the child and the parents were not given the same interview.

The child interview measures ten psychiatric disorders including PTSD, generalized anxiety,

panic, agoraphobia, conduct disorder, alcohol, marijuana and other drug disorders. The child's

exposure to potentially traumatic events, including individual, work-related, and 9/11 was

assessed (Hoven et al., 2009).

The baseline parent interview assessed mental health factors such as depression, anxiety,

PTSD, alcohol and substance use (Hoven et al., 2009). The measures included the Composite

International Diagnostic Interview (CIDI) for alcohol abuse and substance abuse, PTSD checklist

(PCL), Beck Depression Inventory II (BDI-II) 7-item version, and the Kessler Psychological

Distress Scale (K10). The parental exposure to potentially traumatic events was also evaluated.

The levels were, as in the child, individual, work-related, and 9/11. Other protective/risk factors

were also measured. Some of these included: prior trauma, family environment, personality,

coping strategies, health effects, and perspectives on the future.

      This paper utilizes the parental data from the baseline wave. It includes the data from the

Evacuee and FR participants, as well as the Control participants. Adults (787 women, 661 men,

M_{age} = 46.82, age range: 26 -71) were recruited by GPEG and comprise the total baseline

participant sample. Adults (515 women, 480 men, M_{age} = 46.68, age range: 29 - 71) make up the

Index group. Adults (272 Women, 181 men, M_{age} = 47.13, age range: 26 - 64) are in the Control

group. All demographic information about the sample is in *Table 1*.

      The data set was delineated to represent both the mothers and the fathers across the entire

sample. This approach to the data was taken in order to represent the family-unit. Not all

questions were administered to both parents, so this approach allows both parents to be

represented. The Mothers included (787 women, M_{age} = 46.00, age range: 30 - 64) from the

whole sample. The Fathers were (661 men, M_{age} = 47.79, age range: 26 -71) from the entire

group (See *Table 1*).

      From the data set, the variables that pertain to the research questions were identified. This

included variables that pertain to the assessment of exposure to 9/11, parental

monitoring behavior, and depression and anxiety symptoms.

9/11 Exposure

This paper examines the sample from a family-unit level of exposure perspective. The assessment of 9/11 exposure is a continuous variable. It includes seven levels of exposure that define the parental 9/11 exposure variable.

The exposure was broken into seven categories and ranges from 1 (high) to 7 (low). The categories include (1 = "In WTC area, not FR", 2 = "In WTC area, FR", 3 = "Not in WTC area, FR rescue/recovery within 4 months", 4 = "Lived below Canal, not in WTC area, not FR", 5 = "Rescue/Recovery within 4 months, for at least 3 days, not in WTC area, not FR", 6 = "Other minimal exposure", and 7 = "Unexposed") (*See Appendix A*).

From these seven distinctions, three exposure variables were created (3 = "High", 2 = "Moderate", and 1 = "Minimal/None"). Those who were considered to be "High" exposed were those designated by the seven levels of exposure variable as categories "1" and "2". Those who were "Moderate" were from categories "3", "4", and "5". Finally, those in the "Minimal/None" group were from categories "6" and "7" (*See Appendix A*). Dummy coded variables of moderate exposure and high exposure were created and compared against the "Minimal/None" reference group.

Parental Monitoring

Parental monitoring was measured using a 7-item scale which assesses parental monitoring and child disclosure/parent-child relationship (e.g. "The parent knows when the child is away from home", "The child tells the parent about their problems"). The Parental Monitoring items were only asked of one parent, usually the mother; therefore, this paper uses Parental Monitoring at the family level, and it was operationalized in a variety of manners. The goal was to include both perspectives found in the literature. The scales include questions pertaining to the

original definition of monitoring and the more recent definition that includes communication and

child disclosure.

The participants responded to all parental monitoring items using a 4-point Likert Scale

(from 1 = "Never/Almost Never" to 4 = "Very Often"). All parental monitoring questions and

responses from the data set are in Appendix B. If the participant responded "Don't Know" or

refused to respond, this was excluded from the analyses. There were 3 parental monitoring scales

utilized in the analysis, the (PM7), (PM6), and (PM3). The parental monitoring scores for the

mother and the father were summed, and a family parental monitoring sum variable was created

for each scale. The participants included in the analyses were ($n = 847$)

The (PM7) scale includes the family sum of all 7 items that were administered at the

baseline. This includes both perspectives included in the literature that include parental

monitoring and parent-child relationship.

The (PM6) scale was literature driven and includes the family sum of six items (Dishion

& McMahon 1998; Hayes et al., 2007; Kerr & Stattin, 2000). In keeping with the literature,

monitoring pertains to the parent's knowledge of the child's whereabouts, activities, and

associations. The child disclosure question (4 = "The child tells the parent about their

problems.") is considered by some to be part of the parent-child relationship construct. It is often

considered as separate concept from parental monitoring. Kerr and Stattin (2000) argue that child

disclosure is one of the most important monitoring factors that moderates delinquent behavior.

The (PM6) scale includes all items, with the exception of the child disclosure question (item

four). The goal was to see if dropping this item, would influence the results.

Finally, the (PM3) scale was data driven, and the family sum of three items comprise this

variable. A varimax rotated factor analysis revealed that items: "The parent knows when the

child is away from home", "The child goes out without telling the parent", "The parent talks to

the child when the child did something wrong" load together to form a single construct of

Parental Monitoring (PM3).

Anxiety

The anxiety symptoms were analyzed via the family perspective and utilized the entire

sample. To measure anxiety symptoms participants completed the Kessler, et al. (2002)

Psychological Distress Scale (K10; evidence for the validity of this measure is reported by

Sampassa-Kanyinga, et al., [2018]). The 10-item scale ($\alpha = .88$) measures global distress based

on anxiety and depressive symptoms (Kessler, 2002). Survey items asked respondents to respond

according to how they have been feeling over the past 30 days (e.g. "During the last 30 days,

about how often did you feel so nervous that nothing could calm you down?"). All (K10)

questions and responses from the data set are in Appendix C.

The participants responded to all (K10) items in this study using a 5-point Likert Scale

(from 1 = "All of the time" to 5 = "None of the time"). The normative responses are on a 5-point

Likert Scale (from 1 = "None of the time" to 5 = "All of the time"). The K10 variables in this

study were reverse coded, and a K10 sum variable was created for the mothers and also the

fathers. If the participant responded "Don't Know" or refused to respond, this was excluded from

the analyses.

The K10 is scored based on the sum of the 10 items. The (K10) responses were scored

based on the methods described by Kessler (2002) and Andrews (2001) (*See Appendix C*).

Dummy coded variables were created to be compared against the reference group of "Likely

Well". The other variables were designated as "Mild", "Moderate", and "Severe". A family

(K10) Severe variable was generated for use in the regression model. Participants included for

the analyses totaled ($n = 854$).

Depression

Depressive symptoms were also assessed on a family-unit level and included all

participants from the sample. To measure depression symptoms participants completed the Beck,

Steer, & Brown (1996) Depression Inventory II (BDI-II; evidence for the validity of this measure

is reported by Wang & Gorenstein, [2013]). The 21-item scale ($\alpha = .90$) measures depressive

symptoms. Survey items pertained to responses for feelings of sadness, hopelessness, failure,

loss of pleasure, self-dislike, self-criticalness, and suicidal thoughts (Beck, et al., 1996).

The original study used a 7-item truncated version of the (BDI-II) (Beck, et al., 1996) of

the items most predictive of depression from the full 21-item inventory. The participants

responded to all (BDI-II-7) items using a 4-point Likert Scale (from 0 to 3). Each item has its

own unique set of responses. All (BDI-II-7) questions and responses from the data set are in

Appendix D.

A dummy coded variable that represents whether the mother, or the father, were

considered to be depressed was utilized. The cutoff score of four was used, to categorize

participants as depressed (4 or higher) or not depressed (below 4). If the participant responded

"Don't Know" or refused to respond, this was excluded from the analyses. Next, a family

variable representing the family as depressed, or not, was created for use in the model. A total of

($n = 854$) respondents were included.

Results

The internal consistency of the family (PM7), (PM6), (PM3), (K10), and (BDI-II-7)

scales were assessed via Cronbach's alpha test for scale reliability. The parental monitoring

(PM7) scale utilized in this study consisted of 7 items (α = .60). The parental monitoring (PM6)

scale consisted of 6 items (α = .63), and the parental monitoring (PM3) scale consisted of 3 items

(α = .81). The (K10) scale was found to be highly reliable (10 items; α = .85). Cronbach's alpha

for the 7- item abbreviated (BDI-II-7), was .78.

Figure 1 depicts the frequencies of the families' minimal/no exposure, moderate

exposure, and high exposure to 9/11. Figure 1 illustrates that 37% of the sample (*n* = 316) were

considered to have minimal/no exposure, 22.9% of the group (*n* = 196) were moderately

exposed, and 39.9% (*n* = 196) were highly exposed (*See Figure 1*).

Figure 2 exhibits the frequency distribution of the family (PM7) scale. The scores across

the sample (*n* = 847, range: 11-28) are illustrated in the graph. Figure 3 displays the frequencies

of the family (PM6) scale responses. The family (PM6) scale (*n* = 847, range: 8-24) is detailed in

this graph. The frequency of the family (PM3) scale responses (*n* = 847, range: 3-12) are

depicted in Figure 4.

There were 3.5% of the (*n* = 30) sample that were considered to have a family severe

(K10) anxiety score as shown in Figure 5. The family (BDI-II-7) depression scores indicated that

there were (*n* = 211) family participants who were depressed, and this makes up 24.7% of the

sample (*See Figure 5*).

The bivariate correlations between the family (PM7), (PM6), (PM3), (BDI-II-7), and

(K10) scales were examined. A Spearman rank order correlation coefficient was computed to

assess the relationship between the scales. Table 2 depicts the correlations between the scales.

As seen in Table 2, the (PM7), (PM6), and (PM3) scales were all significantly positively

correlated. The (K10) severe variable was not significantly correlated to any of the parental

monitoring scales. The (K10) severe variable was significantly positively correlated to the Beck

Depression (BDI-II-7) variable. The Beck Depression (BDI-II-7) variable was significantly

positively correlated to the (PM3) scale. All correlations were significant at or below the .01

level (*See Table 2*).

Table 3 depicts the results of the regression analyses that were conducted to predict the

families' parental monitoring as a function of their moderate and severe 9/11 exposure. Also, if

the families' severe anxiety symptoms and depression were associated with effects to the

families' parental monitoring scores.

Multivariate linear regression analysis was used to test if the moderate and high exposure,

the severe anxiety (K10), and depression (BDI-II-7) scores significantly modified parental

monitoring (PM7), (PM6), and (PM3) scores, while controlling for age.

The high exposure ($p = .66$), (K10) ($p = .75$), and mothers' age ($p = .49$) predictors were

nonsignificant for the parental monitoring (PM7) scale.

The regression results ($F (6, 583) = 5.24, p < .0001$), revealed that moderate exposure

significantly predicted (PM7) ($\beta = .64, p = .04$). In addition, that (BDI-II-7) scores significantly

predicted (PM7) ($\beta = -.60, p = .03$). Finally, the fathers' age significantly predicted (PM7) ($\beta = -.07, p = .02$).

The high exposure ($p = .55$), (K10) ($p = .42$), and mothers' age ($p = .58$) predictors were

nonsignificant for the parental monitoring (PM6) scale.

The regression results ($F (6, 583) = 4.93, p < .0001$) found that moderate 9/11 exposure

significantly predicted (PM6) scores ($\beta = .61, p = .04$). Also, that (BDI-II-7) scores significantly

predicted (PM6) ($\beta = - .50, p = .049$). Lastly, the fathers' age significantly predicted (PM6) ($\beta = -.06, p = .02$).

The moderate exposure ($p = .24$), high exposure ($p = .51$), (K10) ($p = .16$), and mothers'

age ($p = .67$), predictors were nonsignificant for the parental monitoring (PM3) scale.

The regression results (F (6, 583) = 3.64, $p < .001$) displayed that (BDI-II-7) scores

significantly predicted (PM3) ($\beta = - .52$, $p = .004$). Additionally, fathers' age significantly

predicted (PM3) ($\beta = - .04$, $p = .02$).

Discussion

The results revealed that not all levels of 9/11 exposure are associated with increases in

parental monitoring behavior. However, some of those who were exposed to 9/11 in a moderate

manner, did increase their monitoring. This result held up for two of the three parental

monitoring scales (PM7) and (PM6). This supports the prediction. Those in the moderately

exposed group included first responders, those who were not in the WTC area, and those who

participated in the rescue and recovery efforts as an FR or civilian. The (PM6) scale which

dropped question 4 (child disclosure) did not produce results that differed from (PM7), which

included this question.

It is clear from these results that even moderate exposure can result in changes that can be

seen in parenting. These effects on parenting behavior were seen in the first responder

participants, who are trained to handle such trauma. This illuminates the necessity of ongoing

support for this group, as they will continue to experience trauma exposure as their careers

progress. It is important to acknowledge the effects on the mental health of those who have

cumulative moderate exposures. Those who assisted in the recovery efforts as civilians worked

on the pile at Ground Zero. They aided in the recovery of human remains. This group most likely

had never been exposed to this type of situation prior to 9/11. They were not trained to handle

this type of trauma exposure in the way that the police, EMTs, and firefighters were. Also, they

do not have the systems in place, that FRs have, to access counseling and other treatments that could be helpful. This paper demonstrates the need to implement services and interventions to assist all of those who responded on or after 9/11.

There was not a significant effect on monitoring seen for the highly exposed group. This group included those who were in the WTC area either as a civilian, or a first responder. The singular traumatic high exposure was not sufficient to modify parental monitoring behavior. Those who were more repeatedly exposed during the recovery efforts saw more detrimental effects on their parenting and their psychopathology.

The results revealed that depressed respondents decreased their parental monitoring. This was seen across all three parental monitoring scales. Although, this was opposite of the prediction, it makes sense. Those who are depressed, tend not to be motivated in general, but particularly in the social realm. They would be less likely to fully participate in a healthy and active parent-child relationship, including monitoring and tracking the child's behavior. When a depressed parent does not monitor enough, this puts the child at risk for developing depression themselves (McManama O'Brien, 2015). The significant negative correlation that was found between the (BDI-II-7) and the (PM3) also supports these findings.

The results indicate that depression does affect the daily functioning of these parents, including the First Responders. The First Responder participants also reduced their monitoring when depressed. How does this translate to their duties as a first responder? New research that assesses first responder depression and job effectiveness could provide answers to such a question.

There were no significant effects on monitoring as a result of severe anxiety. This is likely due to the fact that only 3.5% of the sample were considered to have a severe disorder.

While this is good news, future analysis could examine the varying degrees of anxiety symptoms, as well as depressive symptoms. The depression variable categorized the participants as depressed or not, which informed the use of the severe anxiety variable for this paper.

The model controlled for the parent's age, and the Fathers' age produced significant results across all parental monitoring scales. The fathers decreased their monitoring as they got older. This could be due to added life experience contributing to more appropriate monitoring practices. Or, that their children were older as well. However, many of the fathers in this sample are the First Responders. This points to support for the accumulation of trauma exposure being associated with effects to psychopathology, resulting in effects to parenting behavior. Further research that includes psychopathology and first responder fathers, with the child's and the father's age as a mediating factor, could explore this idea. The model did not control for gender and location as this was already set up in the approach to the data.

The results found here support a theory put forth by Dishion & McMahon (1998). They described an increase in monitoring that is dictated by escalated environmental risk. First responders experience a wide variety of traumatic events. These include homicides, suicides, car accidents with fatalities or life-threatening injuries, shootings, domestic, sexual and child abuse, fires, explosions, exposure to toxic substances, and natural disasters. First responders likely perceive a consistently elevated risk in their environment due to the ongoing and repeated nature of their exposure. This perception of risk helps to exacerbate psychopathological symptoms. The wide range of exposures also appears to contribute to the prevalence of how their depression influences parenting, as seen in these results.

It must be difficult for first responders to mentally prepare for each of these types of trauma. Also, they could respond to a call and be exposed to multiple types of trauma at once.

These results demonstrate that the cumulative nature of exposure results in negative mental health effects for these groups. Prior trauma exposure plays a role in the expression of PTSD symptoms and is the biggest predictor of a PTSD diagnosis.

First responders are trained to handle the inevitable trauma they will face in their jobs. This current research points to the need to target these groups and assess which types of trauma exposure result in the most severe disruptions to functioning. This seems to be especially necessary for those who work in urban areas, such as NYC, as can be seen via the sample used in this study. It is also important for police officers who are serving communities that are associated with high crime rates. These groups are more at risk for cumulative trauma exposure as they proceed in their careers. Intermittent assessments could provide helpful information about when the individual needs help. These measures could target the specific symptoms and areas of functioning that need to be addressed. This could help tailor the treatment program to the individual. Future work that explores the proper scales that should be used for those who are exposed to mass-violence, and those who are consistently exposed to trauma would be beneficial.

Social and family support are the biggest factors in resilience after a traumatic life event. These results show that those exposed to 9/11 are likely in need of more opportunities for this type of support. Perhaps, a weekly 9/11 group meeting that is led by a therapist could provide a good outlet for discussion. The first responders and civilians could share the difficult events they experienced on 9/11. Others could offer empathy and share their own similar experiences. This could help to build a connected support system. It is always helpful to hear that you are not alone, and that others had the same reactions to tough encounters. The therapist would be there to

moderate the discussion and to evaluate the need for further intervention. This idea is like the

PTSD group therapy that is proven to be effective for veterans.

The results replicate the findings of significant associations between parental depression

and negative parenting behaviors that were seen in other studies. They also further the support

the McManama O'Brien et al., (2015) results. Their research discovered a significant interaction

between parental monitoring and depressed mood. They went on to find that lower levels of

monitoring produced increases in adolescent drinking and depression. This paper points to the

need for interventions to maladaptive parenting that can prevent negative health outcomes for the

child.

These findings provide evidence for the predictions of the "Children of First Responders

and WTC Evacuees" study (Hoven et al., 2009) from which the sample was derived. In this

paper, the 9/11 exposed group, including FRs, exhibited significant associations of depressive

symptoms and decreased parental monitoring behavior. This validates the Hoven et al., (2009)

prediction that the trauma exposed FRs are indirectly transmitting the effects of their trauma to

their children.

The high reliability of the (BDI-II-7) ($\alpha = .78$) scale used in the analyses provides

evidence that this is a good measure for assessment for this type of research. Even though an

abridged (7-item) version of the (BDI-II 21-item) scale was used, the scale is still highly reliable.

While the reliabilities of the parental monitoring scales were lower (PM7 $\alpha = .60$; PM6 $\alpha = .61$;

and PM3 $\alpha = .81$) these were still acceptable for the analyses.

The issues with the parental monitoring scales are limitations of this research. This

describes the need for the creation of a well-established, highly intercorrelated, reliable,

universal scale that assesses parental monitoring behavior. The call for operationalizing the scale

can be seen in the literature. Many studies use different questions to assess monitoring. The first

task would be to operationalize parental monitoring in a way that includes concepts from all

sides of the debate. Also, the parental monitoring scales were not significantly correlated with

the (K10) measure (see *Table 2*). Future research could focus on a parental monitoring measure

that provides replicable and reliable results across different populations, and for use in assessing

various clinical issues.

Due to the everchanging nature of monitoring, it may be beneficial to conceptualize

monitoring on a spectrum. The proper amount of monitoring could be targeted through the

inclusion of the different factors that contribute to the level of monitoring needed. These factors

could include the age of the child, the child's history of delinquency, the child's history of

psychological issues, the child's demonstrated ability of upholding rules, and the

environment/location of the family. This would allow the parent to adjust the degree of

monitoring as these factors change. The conceptualization of monitoring on a spectrum would

enable an individualized approach for parents and their children.

Another limitation of this work was only the parental data was analyzed. This provides a

good picture of the parent's perception of monitoring. This is one inherent limitation of using

data that has been collected for a different study. More robust analysis could be done with the

use of the child's perspective of monitoring. The agreement between the parent and child results

could be analyzed. This could point to the similarities and differences between the parental and

child perceptions of the monitoring behavior and the parent-child relationship. This would be

especially useful for the child disclosure aspects. The child could endorse how much they

disclose. This approach would inform whether the parent is getting the same amount of

information they believe they are. This type of analysis is seen throughout the literature. An

additional tool could be the use of technology to monitor and track the child's whereabouts. This would illuminate the actual whereabouts of the child, and the child disclosed whereabouts could be compared to that data.

Additionally, these results need to be replicated across different populations. These results represent those who reside in and around New York City. More specifically, those who are located within a 100-mile radius of Ground Zero. The index sample was further specialized via the use of 9/11 exposed First Responders, Evacuees, and their matched Controls. Also, as is illustrated in *Table 1*, the sample tended to be mostly white, of upper middle-class status, married, and college educated. Perhaps, these demographic factors influenced the amount of monitoring, and the prevalence rates of depression and anxiety.

It would be interesting to see if the results hold up for first responders that live in more rural or suburban areas. Do they encounter enough trauma to produce symptoms of depression and anxiety? Further, do these parents see associated increases to the monitoring of their children? Does the safer environment of the suburbs result in the need for less monitoring? Conversely, do police officers in a high crime city environment endorse more severe symptoms that encourage them to monitor at even higher rates? Finally, do these results replicate outside of the United States? How does the SES of different countries influence the results?

These findings do apply to many because depression is a common diagnosis. It is important to evaluate how this affects the individual and their family. The child emulates the parent's behavior throughout development. This includes modeling maladaptive coping and depressive symptoms. Interventions for maladaptive parenting for those with diagnoses such as depression could mediate these effects.

Hayes et al., (2009) propose that the parent-child relationship should be the target for intervention. They believe if there are problems in this realm, including problems with communication, that increasing monitoring is not the answer. Their research calls for an intervention that targets the relationship first, if this is functioning well, then less monitoring is needed. Kerr & Stattin (2000) agree. They describe the elements that include child disclosure to be the protective factors for delinquency, not heightened monitoring. School curriculum that promotes honest and open disclosure from the children could be useful.

This paper is important because it demonstrates how a mass-traumatic event can have lasting effects. Mass violence exposure is significant and traumatic, even for a first responder who is better equipped to handle this type of trauma. The experience of 9/11 produces ripple effects that emanate throughout personal and family functioning. The events on 9/11 reside in the memories of those who experienced it in perpetuity. This potentially exacerbates the symptoms that develop after subsequent traumatic life events. The experience on 9/11 can continue to disrupt functioning and trigger unpleasant memories of that day presently, even though it occurred 17 years ago.

For these reasons it is extremely important to develop specific interventions for these mass-violence exposed groups. Including those who were not first responders on 9/11, as seen by these results. As mentioned earlier, the incidence of mass shootings has increased exponentially since 9/11 making it ever more pertinent today. This research is important in that it informs public policies that provide therapeutic support, medical, and financial assistance. The World Trade Center Medical Monitoring Program is one example of this type of program. There is a growing need to allocate funding for the survivors of mass-violence. I believe this is especially necessary for school children who have been involved in active shooter incidents. Immediate and

long-term interventions designed specifically for this vulnerable population could help to promote resilience.

The good news is that most people are resilient. First responders are especially resilient. I have been in the field to conduct the diagnostic interviews for "WTC Family Study", which is the third wave of the study from which this data is derived. I am inspired by the participants' courage and strength. I am in awe of what they have experienced and how they have managed to navigate through traumatic life events. Those who were exposed to 9/11, those who aided in the recovery efforts, the first responders, and all of their families are very important and extraordinary human beings.

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Table 1

Demographics

		N	Percent	Mean
Parental 9/11 Exposure	Minimal/None	316	37.0	
	Moderate	196	22.9	
	High	341	39.9	
Gender	Female	787	54.4	
	Male	661	45.6	
Age	Mothers			46.00
	Fathers			47.79
Mothers' Race/Ethnicity	White, Not Hispanic	569	66.6	
	Black, Not Hispanic	24	2.8	
	Asian/Pacific Islander, Not Hispanic	32	3.7	
	Other, Not Hispanic	29	3.4	
	Hispanic	82	9.6	
Fathers' Race/Ethnicity	White, Not Hispanic	495	58.0	
	Black, Not Hispanic	18	2.1	
	Asian/Pacific Islander, Not Hispanic	12	1.4	
	Other, Not Hispanic	24	2.8	
	Hispanic	69	8.1	

Mothers' Reported Household Income	< $67,000	104	12.2	
	$67,000 - $145,000	345	40.4	
	> $146,000	292	34.2	
Fathers' Reported Household Income	< $67,000	74	8.7	
	$67,000 - $145,000	296	34.7	
	> $146,000	247	28.9	
Mothers' Highest Level of Education Completed	Junior High School	2	.2	
	Partial High School	4	.5	
	High School Grad/GED	86	10.1	
	Partial College	186	19.7	
	College/University Graduate	269	31.5	
	Graduate Degree	231	27.0	
Fathers' Highest Level of Education Completed	Junior High School	5	.6	
	Partial High School	13	1.5	
	High School Grad/GED	94	11.0	
	Partial College	203	23.8	
	College/University Graduate	254	29.7	
	Graduate Degree	186	21.8	

Mothers' Marital Status	Married	657	76.9	
	Separated/Divorced/Never Married/Widowed	130	15.2	
Fathers' Marital Status	Married	579	67.8	
	Separated/Divorced/Never Married/Widowed	82	9.6	

Table 2

Spearman Correlations Between Scales

	PM7	PM6	PM3	K10	BDI-II-7
PM7	1	.933**	.673**	-.023	-.059
PM6		1	.686**	0	-.049
PM3			1	-.001	-.089**
K10				1	.274**
BDI-II-7					1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3

Regression Analyses

Scale	Predictor	Unstandardized Coefficients		Standardized Coefficients	
		B	*SE*	*β*	*p*
PM 7	High Exposure	-.12	.27	-.021	.66
	Moderate Exposure	.64**	.32**	.09**	.04**
	BDI-II-7	-.60**	.27**	-.09**	.03**
	K10	.20	.61	.01	.75
	Mothers' Age	-.02	.03	-.70	.49
	Fathers' Age	-.07**	.03**	-.13**	.02**
PM6	High Exposure	-.15	.25	-.03	.55
	Moderate Exposure	.61**	.30**	.09**	.04**
	BDI-II-7	-.50**	.25**	-.08**	.049**
	K10	.46	.58	.03	.42
	Mothers' Age	-.02	.03	-.03	.58
	Fathers' Age	-.06**	.03**	-.13**	.02**
PM3	High Exposure	-.12	.18	-.03	.51
	Moderate Exposure	.24	.21	.06	.24
	BDI-II-7	-.52***	.18***	-.12***	.004***
	K10	.57	.41	.06	.16
	Mothers' Age	.01	.02	.03	.67
	Fathers' Age	-.04**	.02**	-.14**	.02**

**. Regression is significant at or below the 0.05 level (2-tailed).
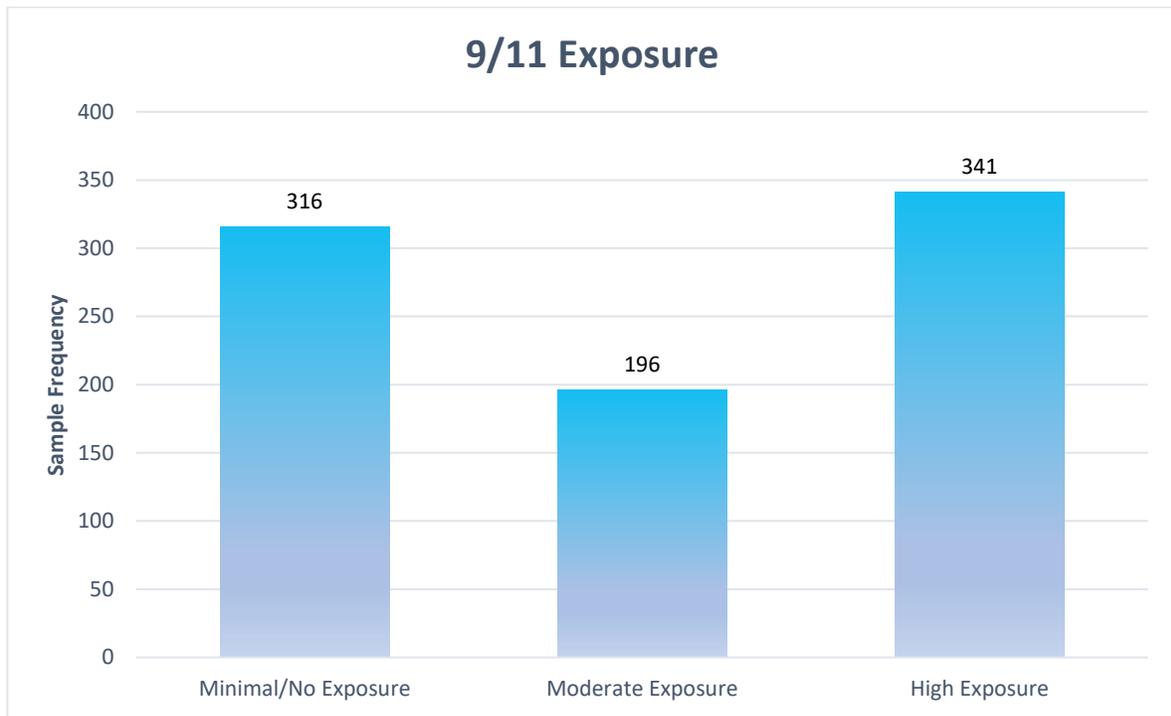***. Regression is significant at or below the 0.01 level (2-tailed).

Figure 1 depicts the frequencies of minimal/no exposure, moderate exposure, and high exposure to 9/11 across the sample.
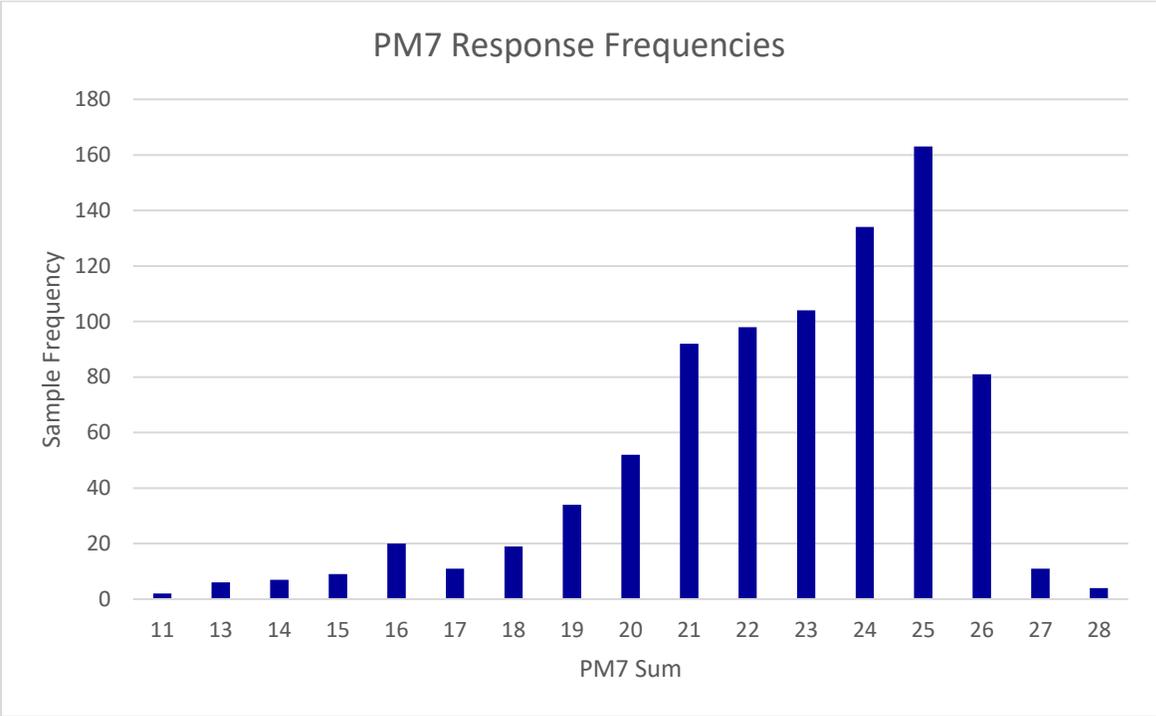
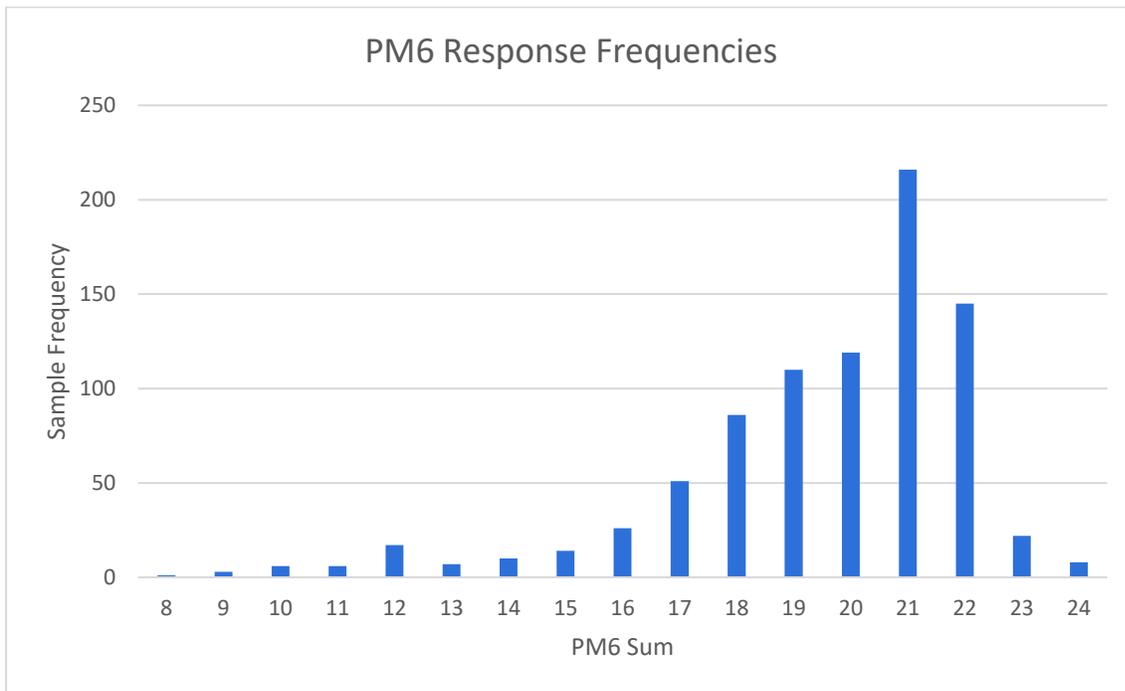*Figure 2* illustrates the frequencies of the responses to the PM7 scale across the sample.

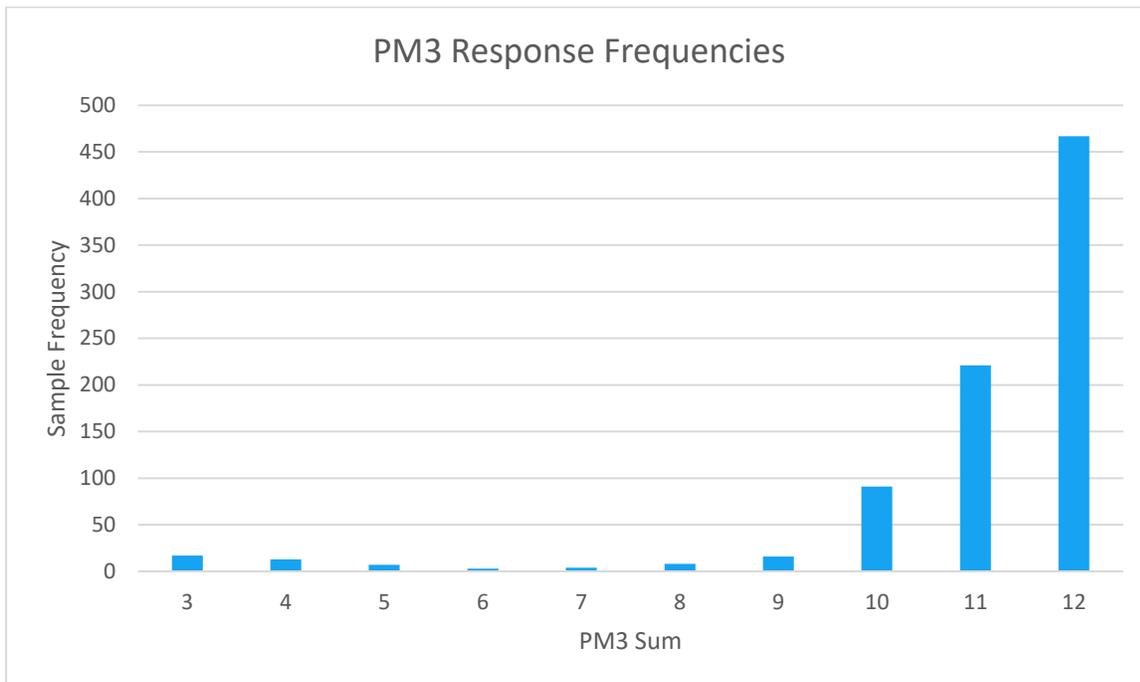*Figure 3* displays the frequencies of the PM6 responses across the sample.

Figure 4 Shows the response frequencies to the PM3 scale for the entire sample.
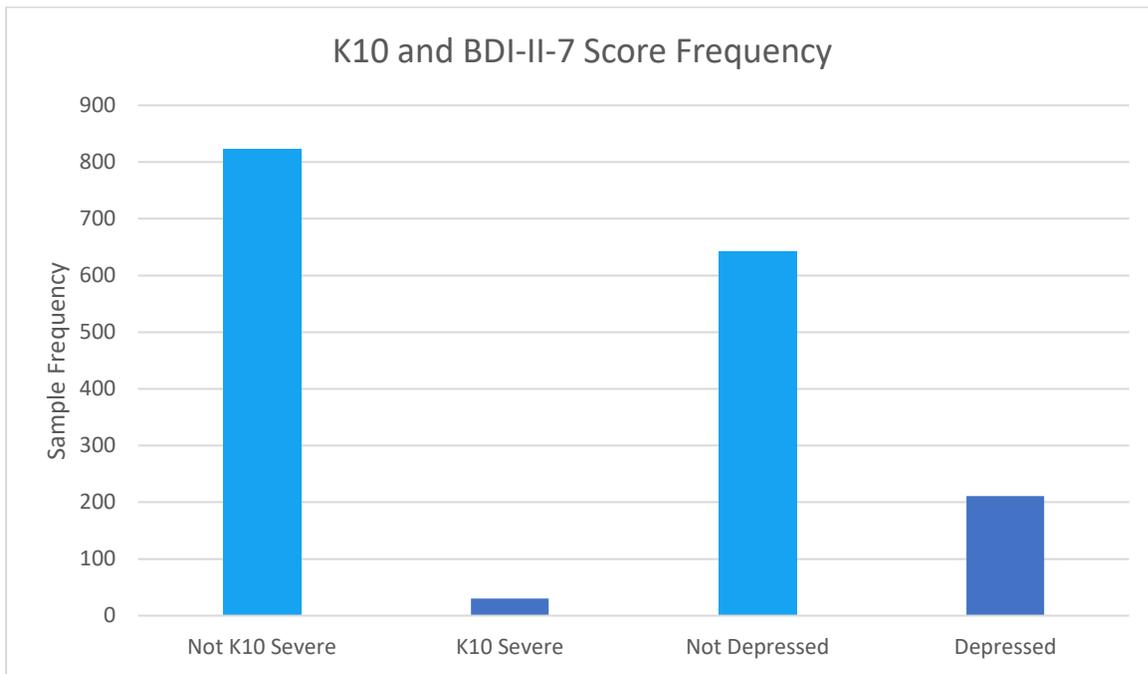
Figure 5 displays the K10 and BDI-II-7 scored frequency distribution for the sample.

Appendix A

Parental 9/11 Exposure Variable:

1 = In WTC area, not FR

2 = In WTC area, FR

3 = Not in WTC area, FR, rescue/recovery within 4 months

4 = Lived below Canal St, not in WTC area, not FR

5 = Rescue/recovery within 4 months, for at least 3 days, not in WTC area, not FR

6 = Other minimal exposure

7 = Unexposed

Coded into 3 levels:

3 = High (1,2)

2 = Moderate (3,4,5)

1 = Minimal/None (Reference Group) (6,7)

Appendix B

Parental monitoring survey questions:

1. The parent knows when the child is away from home.

2. The child goes out without telling the parent.

3. The parent tells the child when to return home.

4. The child tells the parent about their problems.

5. The parent asks the child when something is bothering the child.

6. The parent talks to the child when the child did something wrong.

7. The parent grounds the child.

Response options:

1 = Never/Almost never

2 = Once in a while

3 = Fairly often

4 = Very often

Appendix C

Anxiety symptoms (K10) survey questions:

1. During the last 30 days, about how often did you feel tired out for no good reason?

2. During the last 30 days, about how often did you feel nervous?

3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?

4. During the last 30 days, about how often did you feel hopeless?

5. During the last 30 days, about how often did you feel restless or fidgety?

6. During the last 30 days, about how often did you feel so restless you could not sit still?

7. During the last 30 days, about how often did you feel depressed?

8. During the last 30 days, about how often did you feel that everything was an effort?

9. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?

10. During the last 30 days, about how often did you feel worthless?

Response options:

1 = None of the time

2 = A little of the time

3 = Some of the time

4 = Most of the time

5 = All of the time

Appendix C

K10 scoring and assessment guidelines:

The 10 responses are summed and range from 10-50.

- Score under 20 are likely to be well

- Score 20-24 are likely to have a mild mental disorder

- Score 25-29 are likely to have a moderate mental disorder

- Score 30 and over are likely to have a severe mental disorder

Appendix D

Becks Depression Inventory (BDI-II-7) items and response options:

1. Sadness

   0 = I do not feel sad.

   1 = I feel sad much of the time

   2 = I am sad all the time

   3 = I am so unhappy that I can't stand it

2. Hopelessness

   0 = I am not discouraged about my future.

   1 = I feel more discouraged about my future than I used to be.

   2 = I do not expect things to work out for me.

   3 = I feel that my future is hopeless and will only get worse.

3. Failure

   0 = I do not feel like a failure.

   1 = I have failed more than I should have.

   2 = As I look back, I see a lot of failures.

   3 = I feel I am a total failure as a person.

4. Loss of Pleasure

   0 = I get as much pleasure as I ever did from the things I enjoy.

   1 = I dont enjoy things as much as I used to.

   2 = I get very little pleasure from the things I used to enjoy.

   3 = I can't get any pleasure from the things I used to enjoy.

5. Self-Dislike

    0 = I feel the same about myself as ever.

    1 = I have lost confidence in myself.

    2 = I am disappointed in myself.

    3 = I dislike myself.

6. Self-Criticalness

    0 = I dont criticize or blame myself more than usual.

    1 = I am more critical of myself than I used to be.

    2 = I criticize myself for all of my faults.

    3 = I blame myself for everything bad that happens.

7. Suicidal Thoughts

    0 = I dont have any thoughts of killing myself.

    1 = I have thoughts of killing myself, but I would not carry them out.

    2 = I would like to kill myself.

    3 = I would kill myself if I had the chance.