UNIVERSITY OF CALIFORNIA,
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Community organizations and individual mental health in the wake of the 2013 Boston Marathon bombings

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Psychology and Social Behavior

by

Rupa Jose

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2017

DEDICATION

To

My mother, grandparents ("Ammachi" and "Pappupa"), siblings, and husband

for their support, love, and counsel.

Without my mother's independent spirit, strength, and smarts,

I would have never have travelled far, dreamed big,

or developed a love for learning.

Without my grandparents' devotion,

I would know less compassion and equity.

Without the friendship of my siblings,

I would have laughed less and questioned less.

And without my husband,

I would not have the peace that comes with having a companion

to work, explore, and grow with.

Any success I have is indebted to them.

Today and always, I am thankful for how they have enriched my life and my scholarship.

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ABSTRACT OF THE DISSERTATION

Community organizations and individual mental health in the wake of the 2013 Boston Marathon bombings

By

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The relationship between community organization proximity and post-disaster mental health following the 2013 Boston Marathon bombings is examined in this dissertation. Participant data come from representative samples of Boston and New York metropolitan area residents (*N* = 1,787) assessed several times over a two-year period. Contextual data come from the U.S. Census and online organization archives (Google Places Application Program Interface or API and Guidestar). To date, no known study has explored the psychological benefits or costs of community organizations post-disaster.

Among Boston metropolitan area residents, living close to more safety-based organizations was associated with probable post-traumatic stress disorder (PTSD), functional impairment, and psychological distress. Among these residents, living near more health-based and child- and family-promoting organizations within a half to 1 mile area was associated with a lowered chance of having "probable PTSD" 6-7 months post-bombing and fewer fears and worries at the two year anniversary. For New York metropolitan area residents, educational

organizations and health-based organizations appeared to have some buffering effects, though organization type concentration and proximity had less bearing overall on the psychological health of residents. Being directly exposed to the Boston Marathon bombings or having previously experienced at least one prior community trauma significantly moderated the relationship between organization concentration (i.e., child- and family-promoting organizations and voluntary community organizations) and short-term mental health outcomes. Specifically, among both subsamples, the presence of more organizations within a one mile area corresponded to lower acute stress scores and a decreased risk of being classified as having "probable PTSD" if the resident was directly exposed to the bombings or had a history of community trauma exposure. Also, for New York metropolitan area residents, more indirect media exposure was associated with a decreased risk for probable PTSD with more health-based and voluntary community organizations nearby. These findings suggest that organizations can often be helpful for disaster-exposed residents within or outside a disaster environment, but that select organizations (i.e., safety-based organizations) may be beneficial only at distance after a disaster.

Geographic methods were also used to identify high distress clusters or outlier points using mental health data collected only on Boston metropolitan area residents. Consistent with prior research, significant high distress clusters were found near the site of the bombings. This supports the continued dispersion of relief aid to disaster-exposed areas in the aftermath. Finally, an automated cleaning method incorporating text analysis software (Meaning Extraction Helper or MEH) was outlined using open-source, educational organization data returned from Google Places API (*N* = 10,626). Compared against the manually cleaned data,

the automated organization data were found to be an 89% match. It is therefore recommended that future studies using organization data employ the automated cleaning method to efficiently filter out the “noise” inherent in big datasets.

PREAMBLE

Each year communities are exposed to an array of man-made and natural disasters. In fact, the U.S. Federal Emergency Management Agency (FEMA) recorded 95 disasters in 2013 alone (FEMA, 2014). Defined as large-scale traumatic events, disasters result in serious physical or social "costs" (e.g., property and person loss) to a community or its residents (Smith, Wasiak, Sen, Archer, & Burkle, 2009). Common mental health "costs" reported after disasters include acute stress reactions, posttraumatic stress disorder (PTSD), post-traumatic stress (PTS) symptoms, traumatic grief, major depressive disorder (MDD), generalized anxiety disorder (GAD), panic disorder (PD), substance use, and suicidality (Foa, Stein, & McFarlane, 2006; Koopman, Classen, Cardena, & Spiegel, 1995; Norris et al., 2002).

To curb the impairment associated with community disasters, external services and support are often brought in post-disaster, called "relief aid" (Evangelidis & Van den Bergh, 2013; Kovacs & Spens, 2007). In many cases, external relief aid is a supplement to, or works in collaboration with, the aid provided by local community organizations (Berke & Campanella, 2006; Berke, Kartez, & Wenger, 1993; Olshansky, Johnson, & Topping, 2006). It is thus unclear if these additional and often expensive humanitarian initiatives put in place after a disaster are equally needed by residents with access to pre-existing "social institutions" or local community organizations (Poole & van de Ven, 1989).

The concentration and proximity of local community organizations post-disaster are expected to matter when assessing resident mental health outcomes because: (1) local organizations provide individual residents with resources (e.g., food; Chamlee-Wright & Storr, 2009) and opportunities to increase their social capital (i.e., foster trust, relationships, and get

information; Paxton, 1999; Society of Community Research and Action, 2010), (2) local organizations, as a part of the physical environment, can both help and hinder mental health by triggering emotions or memories, amplifying noise, or attracting crowds (Sullivan & Chang, 2011), and (3) local organizations are not uniformly distributed across space, such that the same organizations are not equally close to all people. Furthermore, with a wealth of research suggesting that public spaces, organizations (Ellaway, Morris, Curtice, Robertson, Allardice, & Robertson, 2009; Francis, Wood, Knuiman, & Giles-Corti, 2012), and other aspects of the built environment (e.g., residential property; Cutrona, Wallace, & Wesner, 2006) relate to pre-disaster psychological health and well-being, this dissertation focuses on the study of "place" and "space" after the 2013 Boston Marathon bombings.

People do not exist separate from the places in which they reside. As described by Cummins and colleagues (2007), people and places engage in a "mutually reinforcing and reciprocal relationship" and this relationship may have important consequences for individual mental health. Despite the interconnections between people and places, most disaster studies only focus on the significance of individual (education, ethnicity, etc.; Bonanno, Galea, Bucciarelli, & Vlahov, 2007) and interpersonal (e.g., social support; Ozer, Best, Lipsey, & Weiss, 2003) factors associated with individual recovery or resiliency. The few recent studies that focus on place attend largely to issues of disaster propinquity and the clustering of negative affect, poor health, or PTS symptomatology (Gruebner et al., 2016a, 2016b, 2016c). This dissertation aims to expand understandings of place by focusing on the measurement, concentration, and proximity of local community organizations, in addition to examining the spatial clustering of resident mental health problems post-disaster.

Applying a socio-ecological approach, this dissertation uses data collected after the Boston Marathon bombings to determine whether having more local community organizations in the immediate or surrounding environment was associated with better post-disaster mental health outcomes in the weeks, months, and years post-bombings. In addition, high distress clusters and people were identified using ArcGIS mapping software and an automated cleaning method for organization data was described and evaluated. Due to the different methods and intertwined objectives of this dissertation, the dissertation follows a three-paper (i.e., chapter) format. The brief specifics of each chapter are described in turn.

The first chapter describes the spatial distribution of acute stress scores, probable PTSD cases, and generalized fears and worries among Boston metropolitan area residents. In this chapter, high distress clusters and outlier observations are discussed in relation to the site of the bombings and the city center (Boston). Because prior research (Gruebner et al., 2016a) has found that poor health tends to aggregate near disaster damaged areas, the high distress clusters were expected to appear near the bombing site.

The second and main chapter of the dissertation uses both Boston and New York metropolitan area resident data, along with Census and organization data, to examine the relationship between organization proximity and concentration and post-disaster mental health. As local organizations can act as a social "meeting place" for residents, service-providers, and others (Unger & Wandersman, 1983), it was hypothesized that more organizations nearby would result in fewer mental health problems. However, safety-based organizations and health-based organizations were not expected to follow this pattern. For these types of organizations, being in close proximity to a higher number of them was

anticipated to result in heightened distress due to the noise, pollution, crowds (Sullivan & Chang, 2011), and motivated offenders (Cohen & Felson, 1979) they could bring to the neighborhood. Direct, indirect, and previous community trauma exposure were also tested as moderators. Being that in-need persons tend to use health service-providing organizations that are near (e.g., Allard et al., 2003; Schmitt, Phibbs, & Piette, 2003), and that childcare and community-centered services are important to residents in a post-disaster environment (Madrid & Grant, 2008), it was hypothesized that having more health-based, child- and family-promoting, or voluntary community organizations close by would be associated with lower distress for exposed residents in the weeks and months post-bombings.

The third and final chapter focuses on a measurement issue, and specifically the cleaning of Google Places API returned data. Because this is a big data archive, to filter out invalid observations can be an extensive and time-consuming process. To improve the utility of Google Places API data, steps of an automated cleaning method are described. The automated cleaning method employed Excel, STATA, and MEH (a text analysis software; Boyd, 2016) programs and used case data of educational organizations within a 5-mile radius of Boston metropolitan area participants' homes. The final automated cleaned file was compared to a manually cleaned file, and similarities and differences were described.

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CHAPTER 1: Mental Health After the Boston Marathon Bombings

On April 15, 2013, two pressure cooker bombs exploded near the finish line of the annual Boston Marathon race. As a televised event, real-time media coverage ensured that people within and outside the Boston area were exposed to the bombings and the subsequent manhunt for the perpetrators. Decades of scholarship suggest that both direct exposure and indirect media exposure to traumatic events carry psychological consequences such as acute stress (Holman, Garfin, & Silver, 2013), post-traumatic stress symptomatology (Silver, Holman, Andersen, Poulin, McIntosh, & Gil-Rivas, 2013; Neria, Nandi, & Galea, 2008; Norris et al., 2002), and heightened fear/anxiety (Pfefferbaum, Newman, Nelson, Nitiéma, Pfefferbaum, & Rahman, 2014; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002) post-event. Even though most studies examine the psychological welfare of disaster-exposed individuals independent of where they live, a few have examined the spatial distribution of mental health in the aftermath of a man-made or natural disaster using individual data *and* residential data. Following large-scale community-level disasters, examining how mental health symptoms vary across space can be used to identify high distress areas in need of relief services, as well as any low distress areas or "resilient" persons for further study.

Pioneering work by Gruebner, Galea, and Lowe has used geographic methods to describe and assess the spatial clustering of psychological symptoms for individuals exposed to community traumas. In one study, Twitter data were analyzed to see if geolocated tweets coded using emotion words after the Paris terrorist attacks in November of 2015 would yield any negative emotion tweet clusters. Findings indicated the presence of a sizeable cluster of fear-related words close to several of the attack sites mere days after the incident (Gruebner et

al., 2016c). Other studies using survey data have also identified spatial clusters of mental illness and well-being in the aftermath of two different natural disasters. Focusing on Hurricane Ike in Galveston, Texas, Gruebner and colleagues (2016a) found a tight-knit cluster of people reporting poor general mental health and wellness spatially segregated on Galveston Island, while a larger cluster of people reporting good mental health was found in inland Texas. Another study using the same dataset examined the clustering of posttraumatic stress symptom (PTSS) trajectories 2-8 months post-hurricane on Galveston Island. Each person was assigned to a trajectory that best captured his or her symptom change over time. For those living in an area with significant clustering of PTSS, the risk for "chronic symptoms" (high and stable PTSS) was 4.92 times higher within the clustered area than outside the clustered area (Gruebner et al., 2016b). After Hurricane Sandy, local clusters of people reporting high post-traumatic stress (PTS) in specific neighborhoods within the Queens and Brooklyn boroughs were also identified (Gruebner, Lowe, Sampson, & Galea, 2015). These studies suggest that resident vulnerability for negative outcomes post-trauma differ depending on geographic location.

The detection of mental health or illness clusters following disaster events is an extension of earlier studies that used distance measurements (e.g., distance to the World Trade Center; Holman, Silver, Poulin, Andersen, Gil-Rivas, & McIntosh, 2008) and population-based maps (Curtis, Mills, & Leitner, 2007) to describe pre-disaster health conditions and post-disaster response or damage. In the current study, the spatial distribution of psychological responses after the Boston Marathon bombings was examined to assess the presence of any high distress or low distress areas or "resilient" persons. Maps were used to display acute stress,

posttraumatic stress, and fear/worry responses after the bombings. Because no universal response is anticipated following traumatic events (Wortman & Silver, 1989), post-bombing responses were expected to be variable across space, with some clustering of high distress symptoms near the bombing site.

Methods

Data were collected five times from April 29th, 2013 to June 24th, 2015 from residents living near the Boston metropolitan area. As part of an ongoing nationally representative longitudinal study on the Boston Marathon bombings, post-event psychological measures were administered 2-4 weeks after the bombing (wave 1), 6-7 months post-bombing (wave 2), and at the two-year anniversary (wave 5).[1] Participants were initially recruited into a nationally representative panel of US adults (i.e., the GfK KnowledgePanel) through an address-based sampling strategy. KnowledgePanel participants from the Boston metropolitan area were oversampled to ensure the study included an adequate and representative sample of participants. In exchange for survey participation, respondents were compensated with free internet access or merchandise credit. Participant residential latitude and longitude data (shifted 100-2,000 ft. based on the population density of the area to ensure anonymity) were acquired separately from GfK around the one year anniversary of the bombings. Information on participants who reported moving before the geodata were pulled (*n*= 50) or participant residencies not within or adjacent to Massachusetts (*n*= 1) were excluded from any further

[1] Waves 3 and 4 were not included as they did not measure mental health responses regarding the bombings. Specifically, wave 3 asked a single open-ended question and wave 4 dealt with the 2014 Ebola outbreak.

analyses. The final sample included data from 788 individuals in or around the Boston metropolitan area.

Measures

Acute Stress. The Stanford Acute Stress Reaction Questionnaire (SASRQ) was used to measure acute stress responses at wave 1. The SASRQ is a valid and reliable measure of acute stress (Cardeña, Koopman, Classen, Waelde, & Spiegel, 2000) and has been used in other post-disaster studies (Silver et al., 2002). The 30-item instrument measures the frequency of traumatic responses such as disassociation, avoidance, hyperarousal, impairment, and re-experiencing using a six-point Likert scale ranging from 1 (not experienced) to 6 (very often experienced). The summed total score of acute stress (range: 30-180) was recoded using one standard deviation above the mean (64) as the cut point. High acute stress was coded as "1" and included values one standard deviation above the mean or beyond, whereas low acute stress was coded as "0" and included all other values.[2]

Probable PTSD. The Primary Care PTSD Screen (PC-PTSD; Prins et al., 2003) is a 4-item measure used to screen for PTSD in waves 2 and 5. This measure asks participants in relation to the Boston Marathon bombings how often they experienced nightmares, avoided situations or thoughts about the event, were on guard, or felt detached from people, places, or things. Response options included "never", "rarely", "sometimes", "often", and "all of the time." Each item was recoded to match the scale's original "yes" or "no" response categories (0=never, 1=

[2] For acute stress and fears and worries, low values do not necessarily represent people who reported "low" symptomatology but rather people who reported "not high" symptomatology. For mapping purposes, a binary measure was preferred to a tercile or quartile measures.

all other non-missing responses). A summation of these dichotomous variables was used to generate a measure of probable PTSD. Persons with probable PTSD (coded as "1") endorsed a minimum of 3 of the 4 symptoms in the last month (Prins et al., 2016). The PC-PTSD screen has been favorably validated against the Clinician Administered Scale for PTSD (CAPS; Blake et al., 1995) and the Posttraumatic Stress Disorder Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993), with reported good test-retest reliability (*r*=0.83; Prins et al., 2003).

Fears and Worries. An 8-item measure was used to assess participant future fears and worries for themselves, their families, and their communities. Using a 5-point rating scale ranging from "never" (coded as 1) to "all of the time" (coded as 5), participants were asked how often they feared/worried about future acts of terrorism, natural disasters, violence, and financial difficulties. The summed total score was recoded using one standard deviation above the mean (20) as a cut point. High fears/worries were represented with a "1" and included values one standard deviation above the mean or beyond, whereas low fears/worries were represented with a "0" and included all other values.[2]

Data Analysis

Maps and cluster analyses were done in ArcGIS ArcMap 10.4.1. To provide a clear visual representation of participant mental health, only valid (non-missing) data points were displayed in point-based maps. Multiple extents (geographic boundaries) were presented to capture the distribution of psychological symptomatology in the counties surrounding and within Suffolk County.[3] ArcGIS analytical tools were also used to determine the presence of spatial

[3] Suffolk County is a county in Massachusetts and includes the capital city of Boston.

autocorrelation (Global Moran's I) and quantify any significant clusters present as high/low clusters or outlier observations (Anselin Local Moran's I). Moran's I considers the location and value of each observation in the dataset to determine whether there is clustering beyond what would be expected by chance alone. High clusters were defined as high distress points nearby other high distress points and represented a poor functioning area. Low clusters were defined as low distress points nearby other low distress points and represented an adaptive area. High outlier observations were defined as a high distress point nearby low distress points; these can be considered "reactive" points. Low outlier observations were defined as a low distress point nearby high distress points; these can be considered "resilient" points. Each point represents a person and is color coded to signal his or her mental health. A 3-mile distance threshold was used for the conceptualization of spatial relationships in cluster and outlier analyses. Due to the spread of the data, a 3-mile fixed distance threshold was preferred over the default distance threshold (e.g., 10-30 miles) to quantify the clustering of psychological symptoms in and around a neighborhood. The accrued information was used to generate maps displaying cluster and outlier points relative to the site of the bombings and the Boston city center.

Results

The psychological well-being of residents from the Boston metropolitan area in the aftermath of the Boston Marathon bombings is visually represented in Figures 1-4. These figures show the distribution of distress using points that capture resident probabilities for probable PTSD and classification as high/low in acute stress or fears/worries. In reviewing these figures, it is notable that there are more points representing "not" probable PTSD, "low" acute stress, and "low" fears/worries than the contrary (i.e., probable PTSD or "high" levels of

distress). In examining the more narrowed area around Suffolk County (i.e., the area closer to the site of the bombings), one sees many points of "high" acute stress or fears/worries within the Suffolk County boundary. Although the points indicating probable PTSD differ slightly over time, the distribution of points for probable PTSD at waves 2 and 5 is similar across both maps (Figures 2-3).

To determine whether these data points are indicative of an actual pattern, spatial autocorrelation tools were used to estimate a global measure of Moran's I. As indicated by the positive and significant Moran's I values based on all non-missing data points, there is significant clustering of acute stress (Moran's I = 0.24; z = 2.91; p = 0.004), probable PTSD (wave 2: Moran's I = 0.49; z = 5.16; p <.001; wave 5: Moran's I = 0.26; z = 2.51; p = 0.012), and fears/worries (Moran's I = 0.25; z = 2.39; p = .017). Local clustering was assessed using the maps presented in Figures 5-8. There were no significant low symptom clusters near the Boston metropolitan area. However, several significant high clusters and outlier points were identified. For acute stress (Figure 5), high acute stress clusters were found near downtown Boston, along with a few high outliers by the Suffolk county border. In Figures 6 and 7 graphing probable PTSD 6-7 months and two years post-bombing, multiple high probable PTSD symptom clusters were found near downtown Boston and the site of the bombings. Outside of Suffolk County, more probable PTSD symptom clusters and high outlier points were found, along with one low outlier point (at wave 5). In Figure 8, only high fear/worry clusters were found slightly south of Boston, with no outliers or low clusters in the surrounding area.

Discussion

The Boston Marathon bombings marked the first successful act of terrorism on U.S. soil since 9/11. The widespread media coverage and direct exposure for those within the Boston metropolitan area made them especially vulnerable to short- and long-term mental health problems. To understand how the bombings affected the health of residents differently across space in the weeks, months, and years post-event, maps were used to examine the distribution of psychological symptoms.

First, these maps demonstrated that the vast majority of people did not appear at risk for PTSD or report high levels of acute stress or fears/worries in the aftermath of the bombings. Second, in line with other research (e.g., Gruebner et al., 2016a), resident clusters of probable PTSD, "high" acute stress, and "high" fears/worries were found near the attack site. These clusters suggest that poor functioning areas tend to be close to the place of the incident, even years post-trauma. High distress symptom clusters were also found along the outskirts of Suffolk County and beyond. This means that in addition to the distressed individuals living near the bombings, there are also a number of distressed individuals living well outside of Boston. No low distress symptom clusters were found to mark a particularly "adaptive" area, although several outlying observations were identified. The sole low outlier who did not report probable PTSD at wave 5 suggests the presence of one "resilient" person in the dataset who is doing well, despite the probable PTSD of others nearby. High outliers were also found outside of Suffolk County, excluding the high acute stress outliers. Given that high outliers mark people who are doing especially poorly compared to others nearby, these "reactive" people may be reporting higher levels of distress than their neighbors for different reasons. For example, they may have a personal connection to the event (e.g., close friend/family member/self was directly

exposed), have consumed extensive bombing related media in the aftermath, or had a prior mental health condition that can explain their symptomology. Based on the descriptive nature of this study, future work should focus on why people are "reactive" as well as the person-level and neighborhood-level factors underlying the existence of high distress clusters post-disaster.

These maps provide a first-pass at understanding the spatial distribution of mental health after a community trauma like the 2013 Boston Marathon bombings. Nonetheless, there are some important limitations. One limitation is that the residential information lacks precision due to the necessary shifting of latitude and longitude for privacy. Though this shifting is not ideal, because it was based on the total population density of the area, points within the Boston area would have only been shifted slightly. A second limitation is that no information was acquired on the location of participants' workplace or daily travel. The finding of high distress symptom clusters and high outlier points being located away from the bombings could be explained by residents who commute into the city for work or leisure. Nevertheless, the presence of high distress clusters adjacent to the bombings is consistent with the literature and suggests that residents living close to an attack site are at heightened risk for psychological problems.

With the frequency of man-made and natural disasters, and ample opportunities for exposure in the age of social media, more effort should be put forth to understand how post-disaster mental health and illness vary across space. This study's findings support the continued dispersion of relief aid in areas proximal to the disaster site as well as certain targeted areas outside of the central area of impact. As in this study, geographic methods should continue to be used to help identify areas "at risk" for poor psychological responses after man-made

disasters. Combined with more labor-intensive systematic data collection efforts, geographic data can help scholars and public health officials understand the causes and mental health consequences of large-scale community traumatic events.

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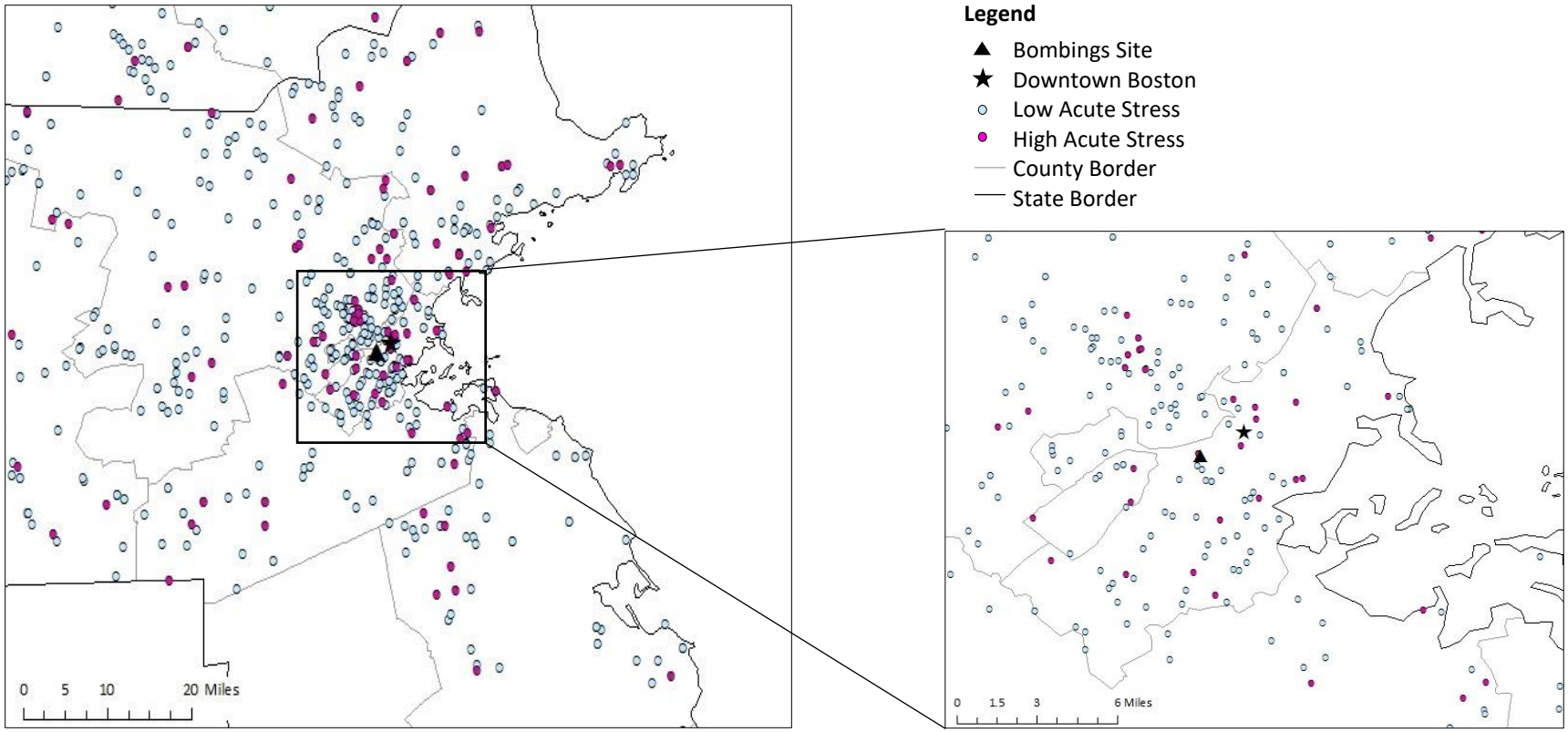

Figure 1. Map of high and low acute stress measured in wave 1 (Boston area sample).

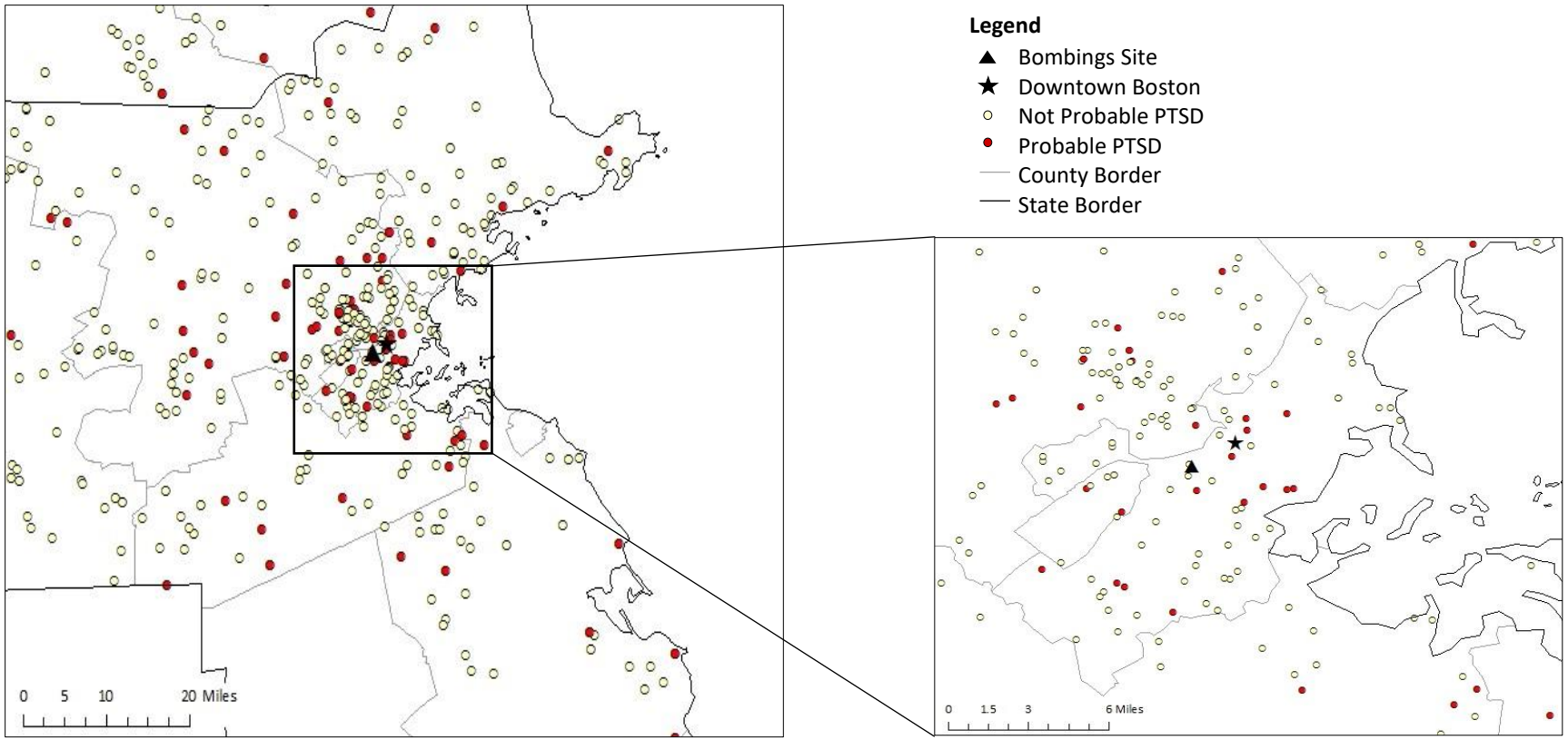

Figure 2. Map of probable PTSD measured in wave 2 (Boston area sample).

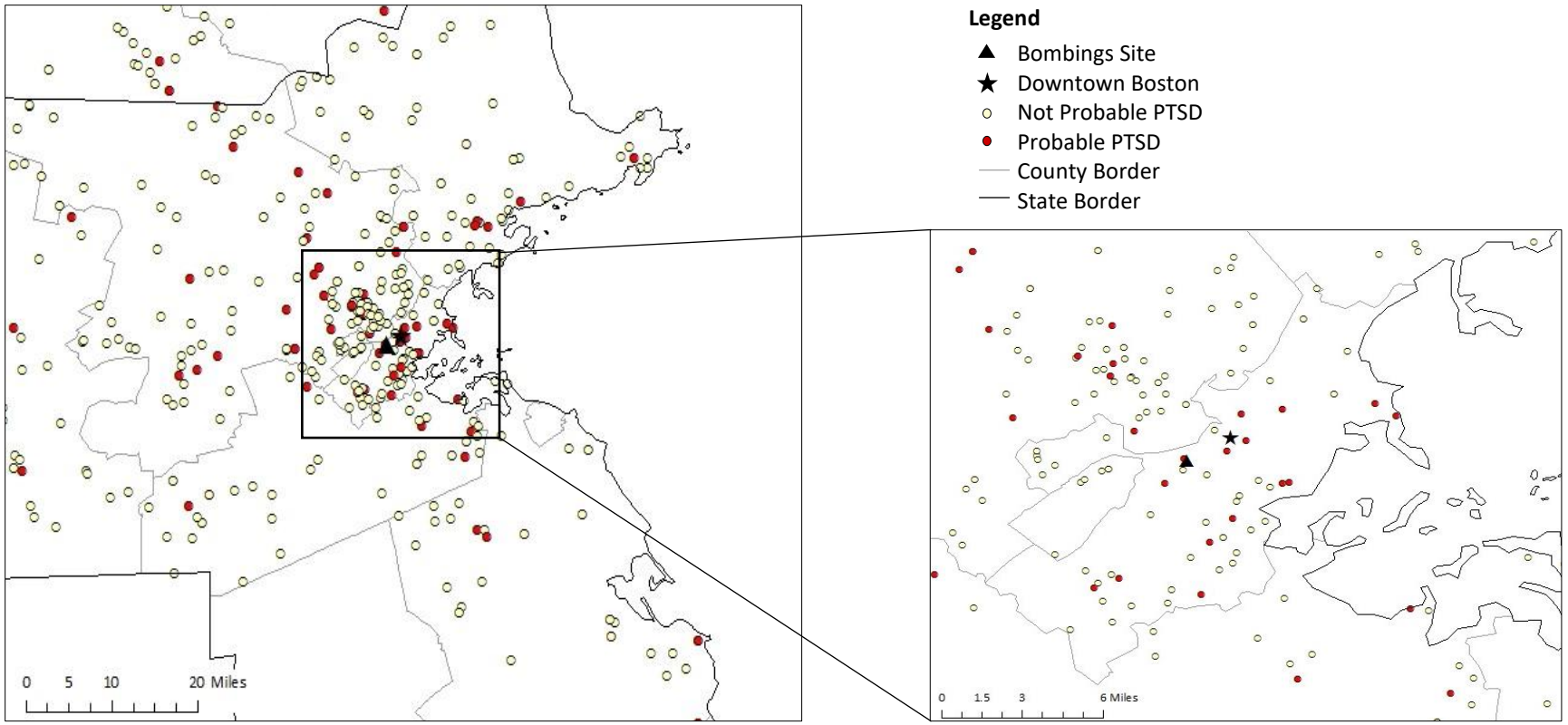

Figure 3. Map of probable PTSD measured in wave 5 (Boston area sample).

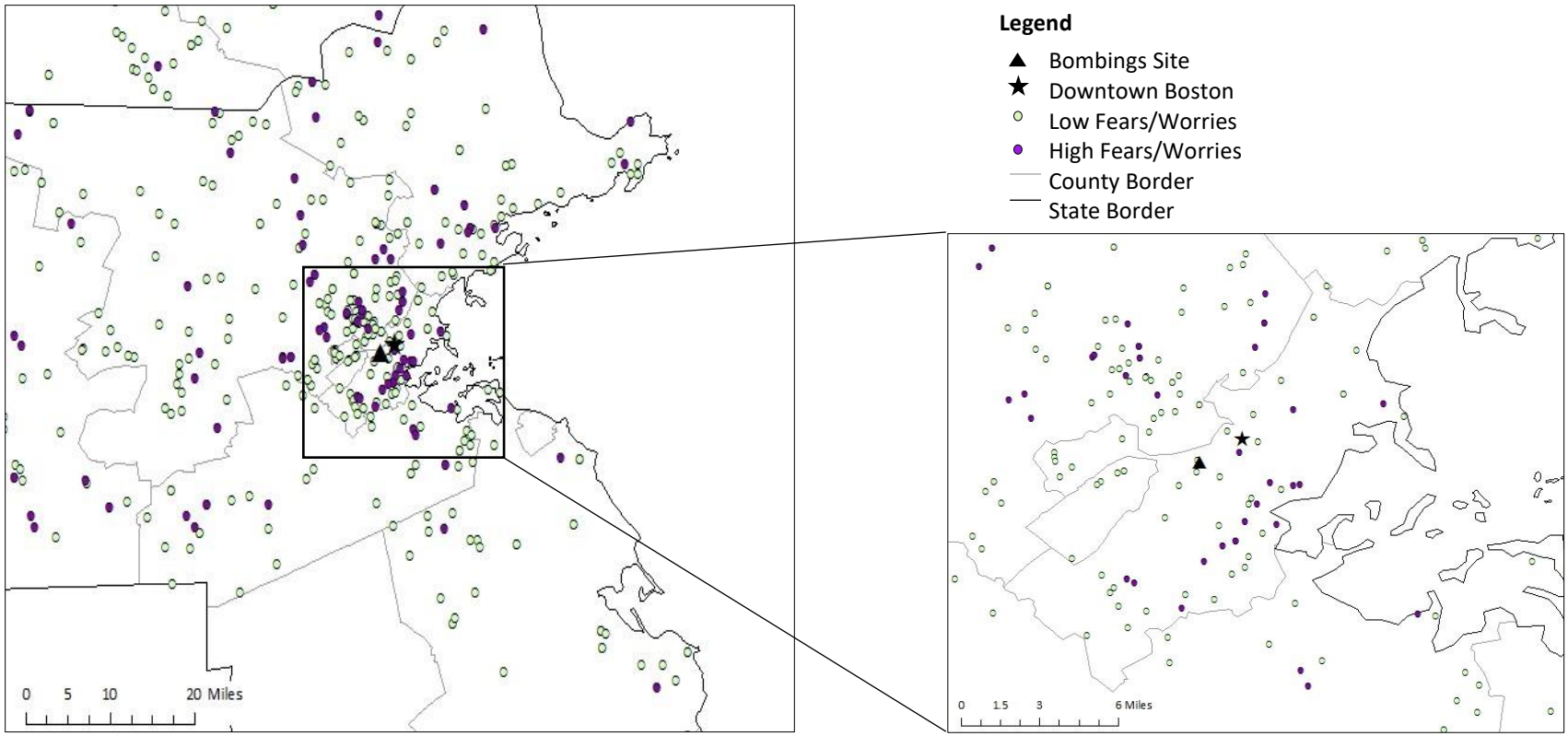

Figure 4. Map of high and low fears and worries measured in wave 5 (Boston area sample).

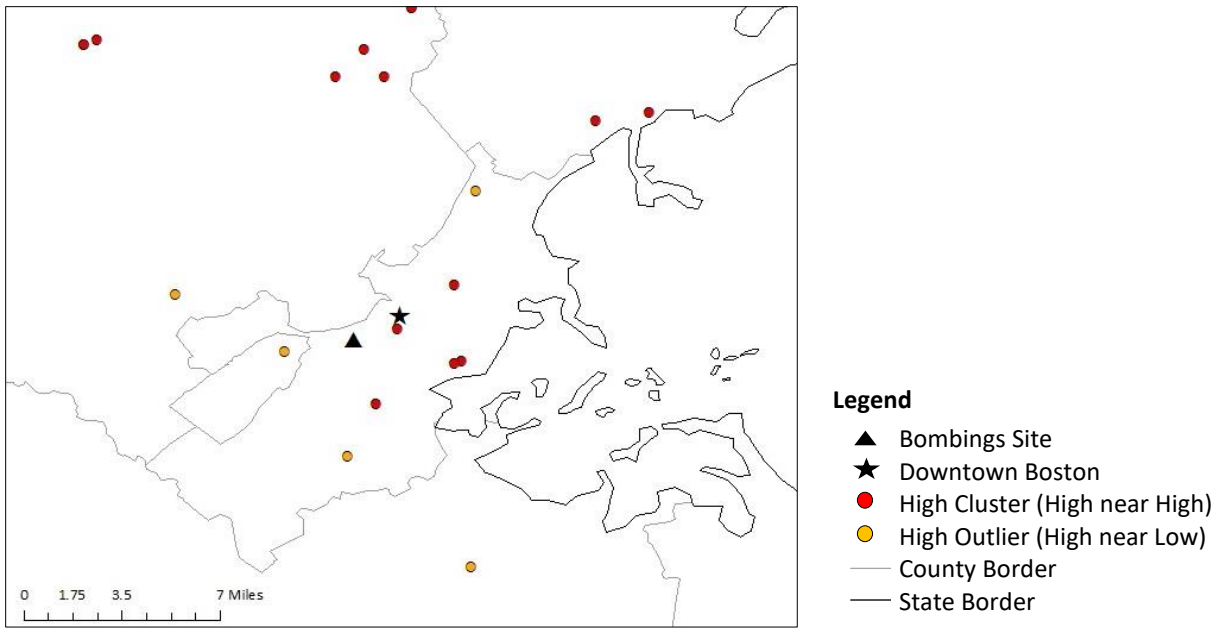

Figure 5. Cluster and outlier map of high and low acute stress measured in wave 1 (Boston area sample).

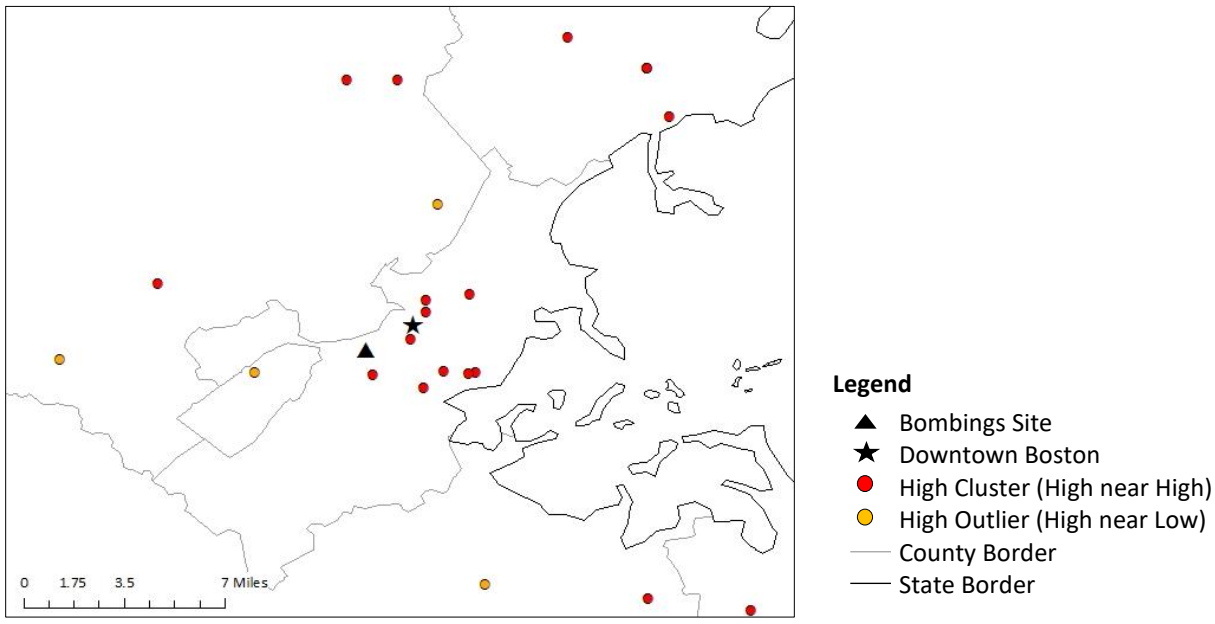

Figure 6. Cluster and outlier map of probable PTSD measured in wave 2 (Boston area sample).

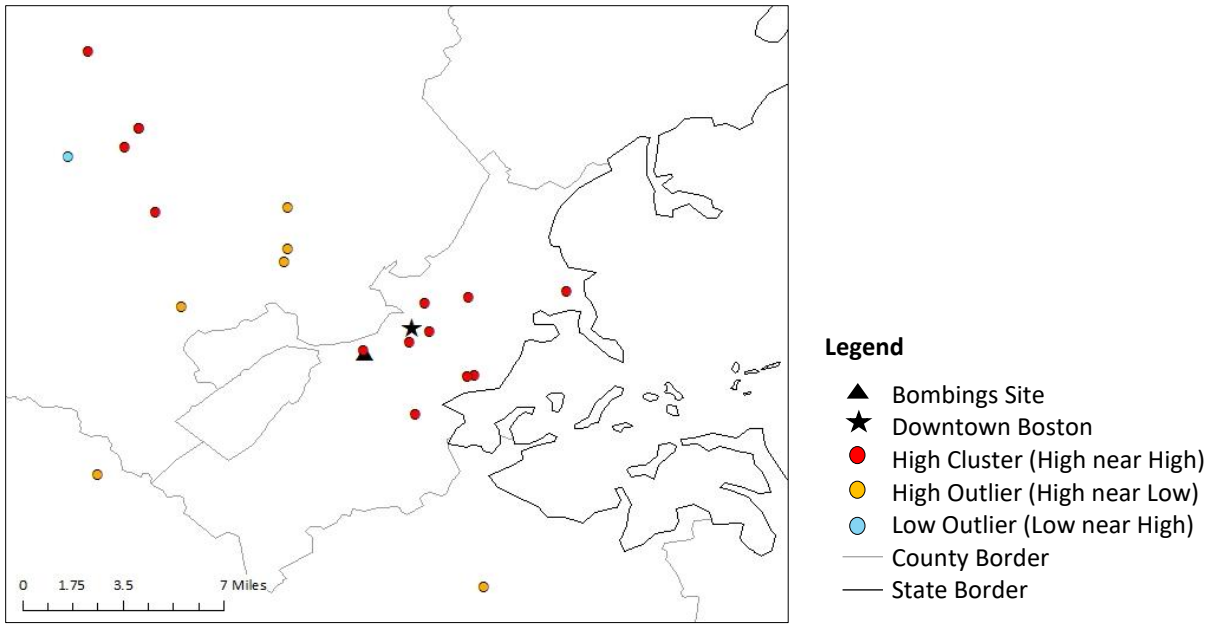

Figure 7. Cluster and outlier map of probable PTSD measured in wave 5 (Boston area sample).

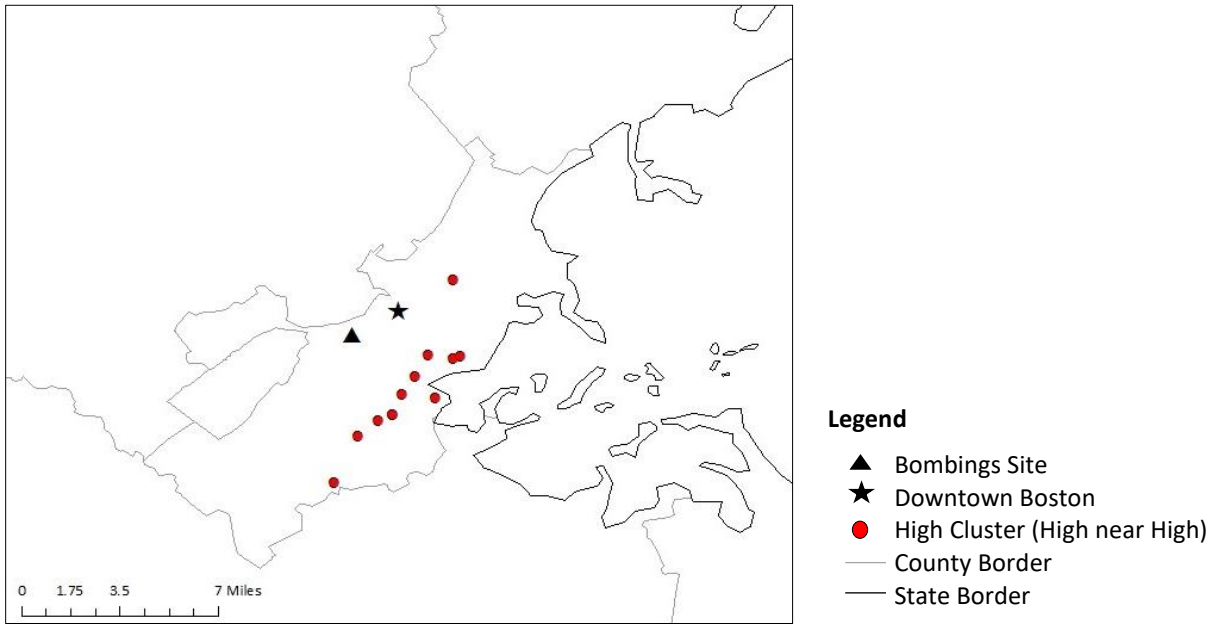

Figure 8. Cluster and outlier map of high and low fears and worries measured in wave 5 (Boston area sample).

CHAPTER 2: Local Community Organizations and Resident Recovery after the 2013 Boston Marathon Bombings

One of the most publicized acts of violence in the U.S. in recent years occurred on April 15, 2013 during the Boston Marathon. Pressure cooker bombs detonated at the finish line and left 3 people dead and around 264 people wounded, marking the first successful act of domestic terrorism since the September 11 attacks on the World Trade Center (Yan, 2014).

Similar to the 9/11 attacks, the Boston bombings received media attention from both national and international press. As indirect exposure to a disaster (e.g., video footage) is associated with psychological problems (Silver, Holman, Andersen, Poulin, McIntosh, & Gil-Rivas, 2013), it was no surprise that acute stress symptoms were experienced for residents of Boston *and* New York City in the weeks following the attack (Holman, Garfin, & Silver, 2014). Over time, prolonged or severe acute stress symptoms may develop into post-traumatic stress disorder (PTSD). For community trauma scholars, PTSD and post-traumatic stress (PTS) symptoms are the most frequently studied mental health problems after natural, man-made, or technological disasters (Neria, Nandi, & Galea, 2008). PTSD, along with poor self-reported physical health, additional psychological problems (e.g., anxiety and depression), and interpersonal, financial, and or occupational difficulties, have been reported in disaster-exposed populations (Norris et al., 2002).

To mitigate the effects of community trauma on individual mental health, researchers have focused on identifying individual and interpersonal factors related to “resilient” (adaptive) outcomes. “Resilience” has been used to describe survivors of both natural (e.g., Hurricane Katrina; Harville, Xiong, Buekens, Pridjian, & Elkind-Hirsch, 2010) and man-made (e.g., 9/11

attacks; Neria, DiGrande, & Adams, 2011) disasters. Assessed typically by a limited or normative stress response (i.e., a rapid return to baseline), factors associated with resilient outcomes include static demographic factors such as age, gender, and ethnicity (Bonanno, Galea, Bucciarelli, & Vlahov, 2007) and dynamic factors such as social support (Bonanno et al., 2008; Ozer, Best, Lipsey & Weiss, 2003) and service utilization (e.g., Garfin, Juth, Silver, Ugalde, Linn, & Inostroza, 2014). For dynamic factors, the context or space where support and services are garnered, though an important catalyst for resilient exchanges, remains a neglected area of study.

A natural 'space' to acquire tangible amenities (e.g., food, blankets; Chamlee-Wright & Storr, 2009), social support or social capital (i.e., trust, relationships, or information; Patterson, Weil, & Patel, 2010; Paxton, 1999), and health services (Yun, Lurie, & Hyde, 2010) post-disaster are local community organizations. Before a disaster, proximity (closeness) to certain types of local community organizations is associated with residential health and welfare outcomes (e.g., crime; Wo, 2014). After a disaster, it is less clear how proximity to different types of local community organizations may relate to an individual's psychological health.

Pre-Disaster Studies of Organizational Proximity

When assessing the role of local community organizations on individual mental health, it is essential to consider the spatial location and concentration of organizations. The location of organizations matter because organizations are not randomly distributed across space (e.g., access to community organizations or resources can be better in deprived urban spaces than in deprived rural spaces; Pearce, Witten, Hiscock, & Blakely, 2008), nor are individuals equally close to the same organizations. Prior studies have used the location of organizations to predict

a variety of outcomes including crime (Beyerlein & Hipp, 2005; Lee, Gainey & Triplett, 2013; Slocum et al., 2013; Willits, Broidy, & Denman, 2013; Wo, 2016), service utilization (Allard, Tolman, & Rosen, 2003), industry innovation ability (Funk, 2014), small-for-gestational-age births (Heck, Schoendorf, & Chavez, 2002), and child maltreatment (Coulton, Korbin, Su, & Chow, 1995; Klein, 2011). Studies on health care service utilization and crime are the most central in understanding how pre-disaster organization proximity might be associated with individual mental health outcomes.

In studies of health-based service organizations, proximity to physical (e.g., Brameld & Holman, 2006; Gregory, Malka, Kostis, Wilson, Arora, & Rhoads, 2000) and mental (e.g., Allard et al., 2003; Schmitt, Phibbs, & Piette, 2003) health-based service organizations have been found to be associated with an increase in service use among residents "in-need." Specifically, Detroit welfare recipients (Allard et al., 2003) and veterans with substance use problems (Schmitt et al., 2003) who lived closer to mental health and substance use facilities were significantly more likely to use these services, even after adjusting for tract- or county-level demographics (e.g., unemployment and poverty rates) and individual-level demographics (e.g., age, diagnoses, and vehicle access). Given that proximity to health-based organizations are important for service utilization in a *pre-disaster* context where "need" is largely static (for a review of service utilization studies, see Higgs, 2004), it follows that organization location and concentration may be of equal or greater importance in a *post-disaster* context when "need" is high.

For crime, multiple types of organizations have been examined in relationship to pre-disaster neighborhood crime rates. In a cross-sectional study by Slocum and colleagues (2013),

the authors explored whether living in a block-group with a high concentration of different organization types was associated with decreased crime rates in the South Bronx. Of the 9 organization types tested,[4] only two organizations had a mitigating effect on violent and or property crime rates: organizations that acted as a "bridge" and organizations oriented toward children and families. In another study by Wo (2016), longitudinal data across 9 U.S. cities were used to examine how alcohol establishments, banking establishments, civic and social organizations, and "third places" (e.g., cafes) related to crime. The results were mixed. Findings suggested that crime increased with more banking and alcohol establishments nearby but decreased with more "third places" nearby (no significant effects were found regarding civic and social organizations).

Literature on the pre-disaster relationship between organizations and people/places suggest two things. First, the spatial proximity and concentration of organizations may in fact inform health and behavior above and beyond individual-level and community-level factors. Second, the effect of local organizations can vary and not all organizations may be beneficial even if they are theoretically intended to have a positive impact on a community (e.g., civic and social organizations). Although no prior studies have examined the relationship between organizations and post-disaster well-being, these findings suggest that local community organizations may also inform mental health outcomes after a large-scale traumatic event like

[4] The 9 types include the following: places of worship, organizations that serve at-risk community groups, schools, religion-connected charitable organizations, adult education and vocational training, voluntary organizations, government agencies, organizations that act as bridges to the larger community, and organizations that promote the well-being of children and families (for details, see Slocum et al., 2013).

the Boston Marathon bombings.

Proximity to Organizations in the Post-Disaster Environment

Large-scale traumatic events or disasters can result in short- or long-term health problems for community residents. Physical health problems can include bodily pain, asthma, heart disease, respiratory disease, cancer, diabetes, or mortality (Brackbill et al., 2009; Brackbill, Cone, Farfel, & Stellman, 2014; Dirkzwager, van der Velden, Grievink, & Yzernans, 2007; Jordan, Miller-Archie, Cone, Morabia, & Stellman, 2011; Jordan et al., 2011), while mental health problems can include PTS, major depressive disorder (MDD), or generalized anxiety disorder (GAD) post-disaster (Norris et al., 2002). Depending on the nature of the disaster (e.g., natural disasters or 9/11), organizations can also be damaged. For community organizations, damage is typically structural (e.g. damaged windows), informational (e.g., lost data) or indirect (e.g., an interruption in production due to transportation problems; Tierney, 2007). To the extent that community organizations remain intact, they can influence resident recovery and may work in tandem with external (emergency) relief aid initiatives (Berke & Campanella, 2006; Berke et al., 1993; Olshansky et al., 2006).

The presence of local community organizations nearby can both help and hinder resident post-disaster recovery. For example, local organizations might foster a healthy mental state post-disaster via the continued services, support, and social capital they are able to offer nearby residents (i.e., Chamlee-Wright & Storr, 2009; Patterson et al., 2010; Yun et al., 2010) or by helping residents feel safe (Wood, Shannon, Bulsara, Pikora, McCormack, & Giles-Corti, 2008). On the other hand, local organizations might also be agitating or distress-inducing in how they can attract crowds or unfamiliar people and increase the noise level of a

neighborhood (Sullivan & Chang, 2011). Comparable to studies of organizations in the pre-disaster environment (e.g., Slocum et al., 2013; Wo, 2016), it may be expected that the effects of living nearby local organizations would vary depending on organization type.

Following the Disaster Research Center (DRC) typology (Dynes, 1970), disasters can change the classification of pre-existing local community organizations into one of three[5] types: (1) "established organizations" or disaster-ready organizations whose structure and function is built ready to respond to disaster situations (e.g., fire stations, hospitals, police agencies, etc.), (2) "expanding organizations" or organizations whose mission is in part to respond to disasters but doing so requires temporary structural changes like recruiting and training volunteers (e.g., Red Cross), and (3) "extending organizations" or organizations that use an existing structural base to take on different tasks from their regular day-to-day operations (e.g., religious institutions,[6] schools, small businesses, public service organizations, etc.; Kreps & Bosworth, 2007; Webb, 1999). The structural and functional changes made by DRC-typed organizations often result in them benefiting a wider array of people post-disaster than pre-disaster. This also means that the relationship between local organizations and people likely differs for residents living within a disaster-exposed community or area compared to those living in a non-disaster area.

As found in the Wicke and Silver (2009) study of the James Byrd Jr. murder in Jasper,

[5] The original DRC typology has 4 types. However, the excluded organization type ("emergent organizations") is one that does not exist before the disaster and typically provides aid only in the short-term (e.g., rescue groups).

[6] For religious institutions, non-routine practices post-disaster can include trauma counseling and providing material or financial support (Sutton, 2003).

Texas, local organizations can be used "to mobilize, to calm, [and] to direct" community residents after a crisis. Compared to external or temporary organizations, pre-existing local organizations can be especially committed to the needs and welfare of residents, supporting affected populations long after the traumatic event (Wicke & Silver, 2009). The enhanced presence, potential benefits and costs, and non-uniformity of local organizations post-disaster all make them important in understanding resident short- and long-term mental health.

A Study of Local Community Organizations and Post-Disaster Mental Health

This study examined the relationship between types of local community organizations and resident mental health after the 2013 Boston Marathon bombings. The Boston Marathon bombings served as an ideal event to study given the extensive publicity surrounding the bombings and the limited structural damage to the area, keeping local community organizations intact. Adopted from prior research on organizations and disasters (e.g., Dynes, 1970; Slocum et al., 2013), six different organization types were examined: safety-based organizations, religious organizations, educational organizations, child- and family-promoting organizations, health-based organizations, and voluntary community organizations. With possible environmental detriments (crowds and noise) or benefits of organizations amplified in areas closest to the resident, the concentration of these local organization types were examined at different distance-based boundaries. Organization type concentration (i.e., the count of them) were assessed as predictors of acute stress 2-4 weeks post-bombings, probable PTSD and functional impairment 6-7 months post-bombings, and general psychological distress and fears and worries 2 years post-bombings. Moreover, the relationship between disaster-related exposure (in terms of the Boston Marathon bombings and prior community traumas in

the Northeast U.S.) was tested as a moderator of the relationship between certain organization types and mental health. As relationships with local organizations may differ for residents living near or just outside the Boston metropolitan area compared to elsewhere in the U.S., a second geographic area -- the New York metropolitan area -- was used for comparison.

Safety-based and health-based organizations. It had been expected that safety-based organizations (police and fire stations) and health-based organizations (e.g., hospitals) might heighten feelings of alarm and distress if located too close because of the noise pollution produced by sirens. Additionally, routine activities theory states that crime occurs in places where there are suitable targets, motivated offenders, and a lack of capable guardians (Cohen & Felson, 1979). As police stations hold and release motivated offenders, living next to a police station might be associated with increased crime and consequently greater distress. However, as effective safety-based organizations also tend to generate feelings of security and safety among residents, which have been found to be inversely related to psychological distress (Schwab-Stone et al., 1995; Ziersch, Baum, MacDougall, & Putland, 2005), safety-based organizations might be expected to reduce distress at farther distances. Similarly, health-based organizations at a distance were anticipated to be beneficial to residents since proximity to health-based organizations are often associated with increased service use for at-risk populations (e.g., Allard et al., 2003).

Religious organizations. Participation in or affiliation with religious organizations among non-psychiatric populations has been deemed an effective way to cope with stress and curb mental health difficulties such as depression, anxiety, fear, suicidality, and substance use

(Koenig, 2009). The presence of religious organizations was therefore expected to have a beneficial effect on residents.

Child- and family-promoting organizations. Child- and family-promoting organizations, such as childcare support, may help children, parents, and families recover after a disaster (Madrid & Grant, 2008). As such, child- and family-promoting organizations were expected to be beneficial to residents in the aftermath of the bombings.

Voluntary community organizations. Voluntary community organizations are organizations that can help people form relationships of companionship and support, two qualities that foster positive mental health and well-being (Thoits, 2011). Low levels of voluntary community membership may also increase one's chances of reporting "poor" or "fair" health (Kawachi, Kennedy, & Glass, 1999). At the same time, voluntary community organizations may reside in areas where residents need more support and services (i.e., high poverty areas; Peck, 2008). Furthermore, voluntary community organizations generally need time (several years) to improve the neighborhoods in which they reside (reduce crime; Wo, Hipp, & Boessen, 2016). The relationship between voluntary community organizations and nearby residents in the aftermath of a disaster is therefore less clear.

Educational organizations. For educational organizations, some research supports considering them "extended organizations" that use their facilities to offer shelter and aid after natural disasters (Chamlee-Wright & Storr, 2009). Guided by these findings, educational organizations may promote positive resident health outcomes post-bombings.

Disaster exposure as a moderator. Persons directly exposed to a disaster, exposed to large volumes of disaster-related media (indirect exposure), or persons with a history of being

directly exposed to other large-scale community traumas (like Superstorm Sandy, Sandy Hook, and 9/11) often report high levels of acute stress, PTSD, and functional difficulties in the aftermath (Silver et al., 2013; Holman, Garfin, & Silver, 2014). Being highly distressed might also lead residents to seek out services or be most comforted by organizations that cater to health issues, families, or community welfare close to home. Of the six organization types measured, three organization types best fit these criteria: health-based organizations, child- and family-promoting organizations, and voluntary community organizations. Therefore, the moderating effect of disaster exposure on the relationship between these local organizations and short-term mental health were examined. The decision to focus only on short-term mental health was guided by the fact that organization concentration and trauma-exposure were expected to have a stronger impact on mental health in the weeks and months post-bombings when the event was still relatively "new" and public distress high. It was hypothesized that persons directly exposed to the Boston Marathon bombings or those with prior community disaster exposure would report lower distress symptoms if they resided in neighborhoods with more of these organizations nearby, compared to persons with no or little disaster exposure.

Methods

Design and Data Sources

This study used participant data collected as part of an ongoing longitudinal study using the GfK KnowledgePanel. GfK is a survey research company that has created a nationally representative web-enabled panel (KnowledgePanel). Panelists (participants) complete surveys in exchange for internet access or points for merchandise. Data were collected on representative samples of New York and Boston metropolitan residents 2 to 4 weeks (Wave 1:

April 29-May 13, 2013) after the bombings (N_{Boston} = 846 and $N_{New\ York}$= 941), 6 to 7 months later (Wave 2: October 18-November 17, 2013; N_{Boston} = 812 and $N_{New\ York}$= 901), and 2 years post-bombings (Wave 5: April 29-June 24, 2015; N_{Boston} = 635 and $N_{New\ York}$= 699).[7]

Participant residential latitude/longitude data (shifted for privacy) were used to determine Census block group IDs within ArcGIS (a spatial software program). Neighborhood-level data (population and household income) were combined with participant data using information from the U.S. Census American Community Survey (ACS) 5-year dataset. Local community organization information was culled using Google Places Application Program Interface (API) and Guidestar (an online repository of non-profit organizations), and was also combined with participant data in ArcGIS for both Boston and New York metropolitan area participants.

Participants

New York metropolitan area participant data were used as a comparison sample for the Boston metropolitan area participants. Despite differences in population density, New York City and Boston are similar in demographic percentages, structure, and geography (see Appendix, Table A1). New York metropolitan area participants also have a shared history of exposure to Superstorm Sandy and terrorism (9/11), making them an appropriate comparison sample. Metropolitan area samples excluded participants with invalid latitude and longitude coordinates (Boston: *n* = 7; New York: *n* = 4), persons who reported moving after the bombings

[7] Waves 3 and 4 were not included as they did not measure mental health responses regarding the bombings. Specifically, wave 3 asked a single open-ended question and wave 4 dealt with the 2014 Ebola outbreak.

(Boston: *n* = 50; New York: *n*= 31), and persons with improbable block group data (i.e., block group population estimated as "0"; Boston: *n* = 1; New York: *n* = 5). The final sample sizes were as follows: Boston metropolitan area: *N* = 788; New York metropolitan area: *N*= 901.

Measures

Predictor variables.

Demographics. Participant demographic information used included: age (in years), gender (female = 1, male =0), race or ethnicity (Hispanic, Black, other race, and multi-race; White as the reference group), household income divided into eight categories (1= less than $24,999, 2= $25,000 to $49,999, 3= $50,000 to $74,999, 4= $75,000 to $99,999, 5= $100,000 to $124,999, 6= $125,000 to $149,999, 7= $150,000 to 174,999, 8=$175,000 or more), marital status (married or cohabitating = 1; widowed, divorced, separated, or never married = 0), education (less than high school education = 1; high school, some college, or Bachelors degree or higher = 0), and employment status (1= paid employee or self-employed, 0= not employed). Updated demographics collected at wave 5 were used to predict mental health outcomes at wave 5.

Residential location. Residential latitude/longitude coordinates were pulled around the one year anniversary of the bombings (April 2014). To ensure participant privacy, coordinates were shifted between 100ft to 2,000ft. The extent of shifting was based on the population density of the Census block. Coordinates were shifted 100-500ft, 600-1,000ft, 1,100-1,500ft, and 1,600-2,000ft if the block had a population density greater than 6,177, between 2,656 and 6,177, between 422 and 2,655, and 421 or less, respectively.

Total population. Total population was equal to the Census estimated population density of the block-group.

Neighborhood income. Neighborhood income was equal to the Census estimated median household income (in dollars) of the block-group.

Local community organizations. Local community organizations were classified into six mutually-exclusive organization types: safety-based organizations (police and fire stations), religious organizations (churches, synagogues, mosques, temples, other places of worship), educational organizations (schools, colleges, and universities), child- and family-promoting organizations (childcare centers, YMCAs, etc.), health-based organizations (hospitals, clinics, mental health facilities, etc.) and voluntary community organizations (community and senior centers, etc.). Using Google Places API and Guidestar, the names, addresses, and latitude/longitude coordinates (for Google Places API[8]) of these six organization types were acquired for Boston and New York metropolitan areas. The thousands of organizations[9] were cleaned by a team of trained research assistants to ensure repeat and invalid entries[10] were

[8] For Guidestar, addresses were geocoded in ArcGIS and Google Earth Pro to get latitude and longitude information. Addresses that could not be geocoded (less than 5% of entries) were dropped. Most addresses that were unable to be geocoded were P.O. Boxes or addresses missing details (e.g., the street number).

[9] Though there were still thousands of organization entries, the file was slimmed from the originally pulled data by removing organizations more than 5 miles from participant residences using ArcGIS.

[10] An example of an invalid entry would be a karate school for the educational organizations pulled via the Google Places API using the search term "school." An invalid entry using the Guidestar data could include a cancer treatment center for health-based organizations.

marked to be removed. After the initial cleaning, another research assistant checked the file for accuracy. For each organization type, counts of the total number of organizations within a 5-mile area of participants were determined in ArcGIS. The vincenty command in STATA was then used to get the number of each organization type at multiple, non-overlapping distance boundaries (see "Data Analysis" section regarding selection of distance boundaries).

Previous community trauma exposure. At wave 1, participants were asked if they were directly exposed to the Sandy Hook Elementary School shootings, Superstorm Sandy, and the 9/11 attacks. Prior direct exposure was measured individually for each event (e.g., respondent or close other directly experienced Superstorm Sandy) and then combined to create a cumulative score ranging from "0" to "3."

Direct exposure to the Boston Marathon bombings. Participant's exposure to the bombings was assessed in the weeks post-event. A dichotomous measure was created with "1" indicating direct exposure as either the participant or someone close to them was at, injured, or near the Boston Marathon on April 15th, in the lockdown area, or the participant knew someone who died. Respondents were coded "0" if they had no direct exposure.

Indirect media exposure to the Boston Marathon bombings. The total number of hours per day a participant spent attending to bombing-related media (i.e., television, online, social media, print and radio) content was measured at wave 1. The total number of hours was recoded into a quartile-based categorical variable (0 = 0 to 1.49 hours; 1= 1.5 to 2.9 hours; 2 = 3 to 5.9 hours; 3 = 6 hours or more) representing the total number of hours per day of indirect media exposure to the bombings.

Prior mental health. Two items from the Centers of Disease Control National Center for Health Statistics annual National Health Interview Survey (NHIS) were used to measure pre-event mental health. Specifically, participants were asked if a medical doctor ever diagnosed them with depression and anxiety disorders. Before the Boston Marathon bombings, 75.3% of the study samples (Boston and New York) had completed the health survey. Missing values were imputed using the Sequential Hot Deck Imputation method (for review, see Andridge & Little, 2010). This method uses the available survey data to predict the likely values for the missing cases. The imputed measure has been used in a previous paper on the current dataset (i.e., Holman et al., 2014). Final values were coded as 0 = no mental health diagnosis, 1= one mental health diagnosis, 2= both depression and anxiety diagnoses.

Outcome variables.

Psychological distress. General psychological distress was measured at the 2 year anniversary of the bombings (wave 5) using 9 items from the 18-item Brief Symptom Inventory (BSI-18; Derogatis, 2001). The BSI-18 is a valid and reliable measure (Derogatis & Savitz, 2000) of global distress. Each item was evaluated along a 5-point rating scale ranging from "not at all" (0) to "extremely" (4) to capture participant distress in the last week. Responses to individual items were summed to create a total distress score (range: 0-36). (Although the original 18-item measure also includes subscales of anxiety, somatization, and depression, with only 9-items, only global distress was calculated.)

Acute stress. The Stanford Acute Stress Reaction Questionnaire (SASRQ) was used to measure acute stress responses in the weeks post-bombing (wave 1). A valid and reliable measure of acute stress (Cardeña, Koopman, Classen, Waelde, & Spiegel, 2000), the SASRQ uses

30 items to measure the regularity of post-event disassociation, impairment, avoidance, re-experiencing, and hyperarousal. Responses are assessed using a six-point Likert scale ranging from “not experienced” (0) to “very often experienced” (5). The summed total score of acute stress symptoms (range: 30-180) was used in study models.

Probable PTSD. Probable PTSD was measured using The Primary Care PTSD Screen (PC-PTSD; Prins et al., 2003). This 4-item measure was used to screen for PTSD 6-7 months post-bombing (wave 2). Participants were asked the frequency with which they experienced nightmares, avoided situations or thinking about the bombings, or felt on guard or detached from things, places, or people after the bombings. Responses were rated using a 5-point scale ranging from “never” to “all of the time.” Items were then re-coded to match the scale’s original “yes” or “no” response categories (0=never, 1= all other non-missing responses) and then summed. Participants indicating 3 or 4 symptoms in the last month were reclassified as “probable PTSD” (1) and participants with fewer than 3 symptoms deemed “not probable PTSD” (0; Prins et al., 2016). The PC-PTSD screen is a valid measure (Blake et al., 1995; Weathers, Litz, Herman, Huska, & Keane, 1993) with good test-retest reliability (r=0.83; Prins et al., 2003).

Fears and worries. An 8-item measure was used to assess general fears and worries 2 years post-bombing (wave 5). Items asked how often participants feared or worried about acts of terrorism, violence, natural disasters, and financial difficulties affecting themselves, their families, and or their communities in the future. Responses were rated along a 5-point rating scale ranging from “never” (1) to “all of the time” (5). A summed total score was created to represent fears and worries (range: 8-40).

Functional impairment. Physical and emotional functioning was measured 6-7 months post-bombing (wave 2) using four items modified from the Medical Outcomes Study 36-item Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992). Items asked participants how much their health (physical and emotional) interfered with social activities and made it difficult for them to perform work or other regular daily activities in the last week. This brief measure has been used in prior disaster research (e.g., Seery, Holman, & Silver, 2010). Responses ranged from "none of the time" (1) to "all of the time" (5). A functional impairment score was generated by summing all four items together (range: 4-20).

Data Analysis

To determine the relationship between number of nearby local organizations and short- and long-term mental health outcomes post-bombing, linear and logistic regressions were estimated. Due to shared Census block group ID details for a subset of participants (Boston metropolitan area sample: 20%; New York metropolitan area sample: 4%), robust standard errors were computed to adjust for the clustering among Census block group IDs. This statistical adjustment was deemed more appropriate than employing a multi-level modeling approach given the extent of overlap noted and the fact that organization count areas were not nested within or measured at the Census block group level. Score totals of acute stress, functional impairment, psychological distress, and fears and worries were modeled using linear regressions, while probable PTSD (a dichotomous measure) was modeled using a logistic regression.

Baseline models including only individual-level predictors and block-group predictors were estimated to interpret significant control coefficients. In subsequent models, service-

providing organization counts of each type (safety-based organizations, religious organizations, educational organizations, child- and family-promoting organizations, health-based organizations, and voluntary community organizations) were examined as predictors of participant mental health. Based on the possibility that more organizations outside of the neighborhood may have buffering effects when compared to organizations within the neighborhood or far from the neighborhood, organization counts were generated within a half-mile area, half-mile to within a 1-mile area, 1-mile to within a 3-mile area, and 3 miles to within a 5-mile area. To aid in comprehension, these distances were labelled as the "immediate environment" (within a half-mile area), "proximal environment" (half-mile to within a 1-mile area), "near-distal environment" (1-mile to within a 3-mile area), and "distal environment" (3 miles to within a 5-mile area). Due to statistical collinearity issues for educational organizations and religious organizations, the latter distances were combined and models were estimated using organization counts for the immediate environment, proximal environment, and "outside environment" (defined as a 1 mile to within a 5-mile area). To highlight the unique contribution of organization types, findings in the "Results" section will be presented according to organization type.

Moderation analyses were included to predict whether the relationship between residential proximity to organizations and mental health varied depending on the level of bombing-related exposure or exposure to previous community traumas. To test the moderating effects of direct bombing exposure, indirect bombing exposure, or prior community disaster exposure, interaction terms were generated with 1 mile counts of three organization types: child- and family-promoting organizations, health-based organizations, and voluntary

community organizations. The decision to use 1 mile organization counts over other count areas (e.g., half mile or 5-mile count areas) was due to the desire to capture a sizeable portion of the neighborhood while still including organizations close to participant residences. Significant interactions were plotted as figures using predictive margin values. All models were estimated separately based on sampled area (i.e., Boston metropolitan area, New York metropolitan area).

Results

Tables 1 and 2 include results from the baseline models. In the Boston and New York metropolitan areas, higher acute stress scores were reported by females, those with a lower income, persons directly/indirectly exposed to the Boston Marathon bombings, and persons with prior exposure to community traumas. In addition, for residents within the New York metropolitan area, being mixed race, having less than a high school education, and prior doctor diagnoses of anxiety and or depression were also associated with higher acute stress scores.

The only significant predictor of probable PTSD was bombing-related media exposure (p<.001) across both samples. For Boston metropolitan area residents, the odds of being labelled with "probable PTSD" increased by a factor of 2.20 with each one unit increase in the amount of bombing-related media consumed.

Functional impairment was positively associated with an increase in prior mental health diagnoses and previous community trauma exposure, and negatively associated with an increase in household income. Furthermore, for only New York metropolitan area residents, being female and an increase in bombing-related media exposure were associated with an increase in functional impairment at wave 2.

For Boston metropolitan area residents, a history of anxiety and or depression was associated with greater psychological distress, whereas being married or cohabitating and living in a more a more densely populated area were associated with lower levels of psychological distress. On the other hand, for New York metropolitan area residents, greater psychological distress was associated with a history of anxiety and or depression, while lower levels of psychological distress was associated with age, income, and employment (i.e., an increase in age or household income and being currently employed).

An increase in bombing-related media exposure, prior mental health conditions, being female, and a decrease in household income were all associated with greater fears and worries two years post-bombing for residents in both sampled areas. Also, for New York metropolitan area residents, each additional community trauma to which one was exposed was associated with an increase in fears and worries. Baseline models explained between 9%-16% (Boston metropolitan area) or 12%-20% (New York metropolitan area) of the variance in outcome variables. Descriptive statistics of all baseline model variables and organization count variables can be found in Table 3.

Safety-Based Organizations

The concentration or number of safety-based organizations was significantly associated with functional impairment and psychological distress among Boston metropolitan area residents (Table 4). For functional impairment, more safety- based organizations in the immediate and proximal environments were associated with a 0.34 and 0.21 unit increase in functional impairment ($p<.05$), respectively, controlling for all other variables (see column 2, Table 4). For general psychological distress measured two years post-bombings, more safety-

based organizations in the proximal environment was associated with a 0.40 unit increase in distress scores (p<.05). However, more safety-based organizations in the near-distal environment was associated with a 0.11 unit decrease in general distress scores (p<.01; see column 5, Table 4), controlling for all other variables. The presence of safety-based organizations was not significantly associated with psychological health in the short- or long-term aftermath of the bombings for New York metropolitan area residents.

Religious Organizations

There was no statistically significant relationship between religious organization counts at different distance boundaries and mental health outcomes for Boston and New York metropolitan area residents (Tables 5 and 11, in order).

Educational Organizations

The presence of educational organizations in the Boston metropolitan area was not associated with resident distress in the weeks, months, and years post-bombing (Table 6). On the other hand, for New York metropolitan area residents, having more educational organizations within the immediate environment was associated with lower acute stress scores (p<.05; see column 1, Table 12). In particular, for each additional educational organization within a half-mile area of one's home, residents reported a 0.41 unit decrease in acute stress scores.

Child- and Family-Promoting Organizations

For each additional child- and family-promoting organization within the proximal environment, the odds of being classified with "probable PTSD" decreased by 29% (OR = 0.71; p<.05; see column 3, Table 7). No significant relationships were reported between the number

of child- and family-promoting organizations and mental health outcomes among New York area residents (see Table 13).

Health-Based Organizations

For each additional health-based organization in the proximal environment, reported fears and worries significantly decreased by 0.71 units for Boston metropolitan area residents (p<.05; see column 4, Table 8). For each additional health-based organization in the near-distal environment, New York metropolitan area residents reported a decrease in psychological distress by 0.13 units (p<.05; see column 5, Table 14).

Voluntary Community Organizations

Among Boston metropolitan area residents, functional impairment was significantly associated with the number of voluntary community organizations in the near-distal environment, adjusting for all other model covariates. Specifically, the addition of one voluntary community organization in the 1 to 3-mile boundary was associated with a 0.07 unit increase in functional impairment (p<.05; see column 2, Table 9). No significant associations between voluntary community organizations and mental health outcomes were seen among New York metropolitan area participants (Table 15).

Direct or Indirect Exposure and Previous Community Trauma Exposure as Moderators

Direct exposure to the Boston Marathon bombings and direct exposure to previous community traumas (i.e., 9/11, Sandy Hook, and Superstorm Sandy) significantly moderated the effect of organizations on the short-term mental health outcomes for residents in both the Boston and New York metropolitan areas (p<.05). All significant interaction results are presented as figures and included as tables in the Appendix (see Tables A2-A19).

As displayed in Figures 1 and 3, more child- and family-promoting organizations located within a one mile area of one's residence and being directly exposed to the bombings was associated with lower acute stress scores. For those not directly exposed to the bombings, living near more child- and family-promoting organizations was associated with higher acute stress scores. Among directly exposed Boston metropolitan area residents, living near more voluntary community organizations also had a buffering effect on the degree of functional impairment reported by residents 6-7 months after the bombings (Figure 2). Likewise, for New York metropolitan area residents who were directly exposed to the bombing and lived near multiple child- and family-promoting organizations, there was a decreased probability of being classified as having "probable PTSD" (Figure 4). Together, Figures 1-4 suggest that being directly exposed to the Boston Marathon bombings and having certain organizations nearby were associated with significantly lower levels of distress or impairment when compared to persons not directly exposed to the bombings.

No statistically significant interactions between indirect exposure and organization type were found for Boston metropolitan area residents. However, among New York metropolitan area residents, the more indirect exposure or bombing-related media consumed in the immediate aftermath of the bombings and the more health-based and voluntary community organizations nearby, the lower the probability that one would be classified as having "probable PTSD" (see Figures 5 and 6).

In interactions with the previous community trauma exposure variable, the few persons directly exposed to all 3 events (Boston: *n*=3; New York: *n*= 26) were grouped with persons exposed to 2 events. For residents in both areas, increased prior community trauma exposure

and living near more voluntary community organizations was associated with a lowered risk of being classified as having "probable PTSD" (see Figures 7 and 9), with a steeper and more sizeable decline in risk noted for Boston metropolitan area residents. Additionally, the risk of being classified as having "probable PTSD" also decreased with an increase in previous community trauma exposure and living near more child- and family-promoting organizations for New York metropolitan area residents (see Figure 8).

Discussion

This is the first known study to examine the relationship between local community organizations and mental health and well-being following a community-wide disaster. Prior work, however, has found that local organizations are associated with pre-disaster health and well-being (e.g., Heck, Schoendorf, & Chavez, 2002), often aid in post-disaster relief efforts (Dynes, 1970; Kreps & Bosworth, 2007; Sutton, 2003; Webb, 1999; Wicke & Silver, 2009), and that community-level factors are of equal importance to individual-level ones (Diez-Roux, 1998; Schwarz, 1994). With the exceptions of safety-based and health-based organizations, it was expected that the presence of more service-providing organizations close to one's residence would be associated with lower levels of distress. Furthermore, as the event in question occurred in Boston, the beneficial role of organizations was expected to be more pronounced among Boston metropolitan area residents than among New York metropolitan area residents.

As hypothesized, more safety-based organizations in the immediate and proximal environments were associated with poor mental health outcomes, whereas having more of these organizations further away (i.e., in the near-distal environment) was associated with less psychological distress. These significant relationships were only found for Boston metropolitan

residents, suggesting that the presence of safety-based organizations in a post-disaster environment may be different than in a non-disaster or pre-disaster environment. One reason for this difference might be that after a disaster, residents may be more attuned or wary to the sounds and sights of police and fire persons or property. Similarly, although health-based organizations were not significantly associated with psychological outcomes (only trend level or $p<.10$) in the immediate environment, statistically significant associations were noted outside of the immediate environment. That is, the more health-based organizations in the proximal environment or near-distal environment, the fewer fears and worries reported by Boston metropolitan area residents and the lower general psychological distress reported by New York metropolitan area residents.

For child- and family-promoting organizations and educational organizations, having more of these organizations in one's neighborhood was associated with a lowered chance of reporting stress symptoms. Also, although it was thought that religious organizations and voluntary community organizations might have distress buffering capacities, the opposite was found. A greater concentration of religious organizations in the proximal environment was associated with higher acute stress scores for residents in the New York area. Having a greater number of voluntary community organizations in the near-distal environment was likewise associated with more functional impairment for residents in the Boston area. Heightened distress for those living near many religious organizations might be a consequence of these organizations being feared as "targets" for future terrorism, or perhaps due to the increased crowds found close to religious organizations. Also, the greater functional impairment reported by residents living near voluntary community organizations could be driven by the fact that

such organizations tend to exist in areas of high need and cater to at-risk, vulnerable populations.

None of the organization types measured at different distance boundaries were associated with resident acute stress scores (Boston area sample) or probable PTSD, functional impairment, and fears and worries (among the New York area sample). The lack of findings for New York metropolitan area residents was not entirely unexpected as these organizations would not be anticipated to bear on mental health and functioning unless the resident was exposed to the bombings. Furthermore, the absence of associations for the sample of New York area residents suggests that the Boston-area results are not merely a consequence of residential choice, but may be a consequence of living in a post-disaster community. Models examining disaster exposure as a moderator collectively suggest that residents with recent or previous disaster exposure may benefit more from child- and family-promoting, health-based, and or voluntary community organizations in their neighborhood.

In the Boston metropolitan area, residents who were directly exposed to the bombings reported lower acute stress scores and fewer functional difficulties, on average, with more child- and family-promoting organizations or voluntary community organizations nearby. However, Boston metropolitan area residents not directly exposed to the bombings, with more child- and family-promoting or voluntary community organizations nearby, reported poorer mental health outcomes. A similar relationship was also seen among New York metropolitan area residents. The only difference being that the number of child- and family- promoting organization in a 1-mile area had almost no effect on the mental health of residents not directly exposed to the bombings. Among New York metropolitan area residents, greater consumption

of bombing-related media was initially associated with a higher chance of being classified as having "probable PTSD," but with each additional health-based organization and voluntary community organization, a resident's chances of being labelled as having "probable PTSD" decreased. Indirect media exposure is an established risk factor for poor mental health (Vasterman, Yzermans, & Dirkzwager, 2005; Wright, Ursano, Bartone, & Ingraham, 1990). For indirectly exposed New York residents who were undoubtedly unable to capitalize on emergency relief aid, it is promising to find that local health-based and voluntary community organizations may minimize the likelihood of PTSD developing. Finally, having a history of direct community trauma exposure and living near more voluntary community organizations or more child- and family-promoting organizations (New York metropolitan area sample only) was associated with a reduced chance of being labelled as having "probable PTSD." As found by Seery and colleagues (2010), having *some* history of cumulative lifetime adversity was associated with reduced global distress, functional impairment, fewer post-traumatic stress symptoms, and higher life satisfaction over a two-year period. This protective effect of prior adversities on well-being may also exist when considering previous community traumas. That is, it is possible that having previous direct exposure to other community traumas may provide residents with an opportunity to engage with or learn about different local community organizations. This may foster positive memories and increase comfort with such organizations (Sullivan & Chang, 2011), perhaps facilitating effective use of organizations in future times of crisis.

Though these findings are suggestive, some limitations must be acknowledged. First, residents' latitude and longitude coordinates were shifted to protect the anonymity of

respondents. The amount of shifting varied depending on the population density of the area, with urban or highly populated areas only shifted 100-500 feet (a small amount). Nonetheless, it would have been ideal to have more precise participant latitude and longitude coordinates as it would have improved the precision of the organization counts across the different distance thresholds. Second, the process of cleaning and checking the organization entries was labor and time-intensive. Better practices to deal with such high volume of data, especially data scraped using Google Places API, would benefit future research in this arena (see Chapter 3). Third, both sources of organization data have their limitations. Google Places API data included more invalid organizations but also included more obscure organization entries (e.g., schools with small enrollment,) whereas Guidestar data, though more valid, included only listings of tax-exempt non-profit organizations. In the end, however, the use of both data sources allowed for the examination of multiple local community organization types. Finally, although we were able to obtain information on the proximity and concentration of organizations, there was no information on organization use. Therefore, this study cannot comment on which organization types residents used, how far residents typically travel for different services, or how efficacious residents find local community organizations post-disaster.

Disasters – both man-made and natural – occur with increasing regularity (FEMA, 2017). These events can not only disrupt the functioning of local communities but can negatively influence the welfare of residents. Bringing scientific data to bear on the post-disaster environment can facilitate social and economic recovery. To date, studies on post-disaster recovery of residents have focused almost exclusively on the individual-level or interpersonal factors associated with well-being (e.g., Ozer et al., 2003). Community factors, though

understudied, remain an important predictor of mental health (Jose, Holman, & Silver, in press; Gruebner et al., 2016). Focusing on the Boston Marathon bombings, this study examined associations between community organizations and short- and long-term mental health outcomes. Findings showed sample differences in the relationship between proximity to and concentration of local community organizations and mental health, with nearby organizations having stronger effects on the welfare of Boston metropolitan area residents than New York metropolitan area residents. Relationships between organizations and psychological health outcomes varied depending on the type of organizations and the degree of closeness. At times, living around certain service-providing organizations (safety-based organizations or voluntary community organizations for Boston metropolitan area residents) was associated with poor mental health, while proximity to other organization types (health-based organizations for both sampled residents) was associated with better mental health outcomes. For persons directly or indirectly exposed to the bombings or with prior community trauma exposure, results suggested that having more voluntary community organizations and child- and family-promoting organizations nearby tended to buffer against the negative effect of the bombings on residents.

These findings suggest that local community organizations are associated with resident mental health outcomes, above and beyond traditional individual-level predictors. Depending on the type of local community organization and residents' experiences with community traumas, living near organizations was associated with fewer or greater mental health problems. Future studies should therefore continue to study the possible protective nature of local community organizations after disasters. As the benefits conferred by local community

organizations may be strongest when considering disaster events of a similar magnitude and nature, replication efforts should first focus on other large-scale disasters where structural damage is localized. Results are expected to be similar for man-made disasters, but perhaps may differ for natural disasters given the often extensive structural damage experienced after a natural disaster.

Study results suggest that at-risk residents benefit most from voluntary community organizations and child- and family-promoting organizations, and all residents benefit from health-based organizations (at a distance). For health-based organizations, proximity has been found to correspond with use (e.g., Schmitt, Phibbs, & Piette, 2003), which may underlie the association found. However, for some other organizations (i.e., voluntary community and child- and family-promoting organizations), why more of these organizations nearby are beneficial to disaster-exposed residents is still unknown. Efforts to understand local community organization use and sentiments (attachment) after man-made disasters remain an interesting avenue for future research. Being that local community organizations may be largely inactive (i.e., closed) post-natural disaster, studies of organization use and attachment after a natural disaster is less advisable.

After a disaster, external relief aid is brought into communities to foster recovery. Findings suggest that these external initiatives should take into account the availability of local community organizations when allocating services and support. Doing so may prove to be an economical and efficient way to identify residents or areas at-risk for poor outcomes. Though local community organizations themselves can both help and hinder recovery after a disaster, they tend to do more “good” than “harm” to those most affected by the disaster. Thus,

understanding their role may promote resident -- as well as community -- recovery post-disaster.

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Table 1. Boston Metropolitan Area Sample Baseline Regression Models

	Acute Stress (Nobs = 776; Nclusters = 616)			Probable PTSD (Nobs = 648; Nclusters = 522)			Functional Impairment (Nobs = 648; Nclusters = 521)			Psychological Distress (Nobs = 572; Nclusters = 465)			Fears and Worries (Nobs = 570; Nclusters = 463)		
	b	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.26	1.00	0.01	0.78	-0.01	0.01	0.31	-0.01	0.01	0.36	-0.01	0.02	0.47
Black	-2.78	3.17	0.38	2.83	1.63	0.07	-0.30	0.65	0.64	-0.09	0.88	0.92	2.06	1.26	0.10
Hispanic	-3.33	3.54	0.35	0.61	0.66	0.65	0.06	0.61	0.92	0.29	1.02	0.78	1.87	1.09	0.09
Other	7.09	5.31	0.18	1.36	1.24	0.74	-0.25	0.46	0.58	0.95	0.93	0.30	-1.54	1.22	0.21
Mixed Race	9.41	7.10	0.19	1.72	1.37	0.49	0.04	0.54	0.93	3.08	1.54	0.05	-0.18	1.31	0.89
Female	6.05	1.18	0.00	1.62	0.40	0.05	-0.10	0.21	0.61	0.20	0.29	0.49	1.13	0.40	0.01
Household Income	-1.42	0.41	0.00	0.90	0.06	0.13	-0.17	0.06	0.01	-0.14	0.08	0.06	-0.31	0.12	0.01
Married/Cohabitating	-0.09	1.63	0.96	0.98	0.28	0.96	-0.36	0.26	0.17	-0.78	0.38	0.04	-0.17	0.50	0.73
Less than High School education	-0.65	3.05	0.83	0.33	0.34	0.28	0.30	0.70	0.67	1.59	0.91	0.08	0.66	1.72	0.70
Currently employed	0.78	1.34	0.56	0.79	0.21	0.38	-0.58	0.22	0.01	-0.74	0.39	0.06	0.68	0.49	0.17
Prior mental health	2.59	1.44	0.07	1.32	0.24	0.14	1.15	0.21	0.00	1.63	0.37	0.00	0.80	0.39	0.04
Direct Exposure	3.78	1.65	0.02	1.09	0.30	0.76	-0.03	0.23	0.88	0.46	0.37	0.22	0.65	0.47	0.17
Media Exposure	3.83	0.67	0.00	2.20	0.36	0.00	0.18	0.10	0.06	0.34	0.17	0.05	0.61	0.24	0.01
Previous Community Trauma Exposure	4.35	1.66	0.01	1.01	0.20	0.96	0.39	0.21	0.06	0.15	0.28	0.58	0.29	0.39	0.46
Total Population	0.00	0.00	0.79	1.00	0.00	0.48	-0.00	0.00	0.32	-0.00	0.00	0.02	-0.00	0.00	0.50
Neighborhood income	0.00	0.00	0.23	1.00	0.00	0.96	0.00	0.00	0.78	0.00	0.00	0.78	-0.00	0.00	0.25
Constant	35.06	3.95	0.00	0.03	0.02	0.00	6.42	0.69	0.00	4.06	1.23	0.00	15.05	1.49	0.00
Wald chi-square *(df)*				49.37 (16)***											
F (*df, df)*	7.55 (16, 615)***						4.25 (16, 520)***			3.97 (16, 464)***			3.84 (16, 462)***		
Pseudo Model R-square				0.0933											
Model R-square	0.1566						0.1284			0.1498			0.1028		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 2. New York Metropolitan Area Sample Baseline Regression Models

	Acute Stress (Nobs = 886; Nclusters = 847)			Probable PTSD (Nobs = 692; Nclusters = 669)			Functional Impairment (Nobs = 681; Nclusters = 659)			Psychological Distress (Nobs = 654; Nclusters = 631)			Fears and Worries (Nobs = 654; Nclusters = 631)		
	b	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.63	0.99	0.01	0.13	0.00	0.01	0.84	-0.04	0.02	0.03	-0.01	0.02	0.62
Black	-3.20	2.02	0.11	1.40	0.55	0.40	0.28	0.45	0.53	1.03	0.77	0.18	0.86	0.79	0.28
Hispanic	2.53	2.08	0.22	0.83	0.32	0.62	0.30	0.32	0.35	1.20	0.84	0.15	0.97	0.75	0.20
Other	11.11	5.63	0.05	3.69	2.22	0.03	0.40	0.73	0.58	1.90	1.57	0.23	-0.81	1.69	0.63
Mixed Race	10.03	4.31	0.02	2.12	1.30	0.22	0.70	0.77	0.37	0.71	1.28	0.58	0.47	1.33	0.72
Female	3.44	1.28	0.01	1.43	0.38	0.17	0.75	0.24	0.00	0.46	0.41	0.27	1.70	0.47	0.00
Household Income	-1.11	0.33	0.00	0.91	0.07	0.19	-0.34	0.06	0.00	-0.27	0.09	0.00	-0.47	0.11	0.00
Married/Cohabitating	-0.31	1.49	0.84	1.15	0.30	0.58	-0.15	0.27	0.58	-0.14	0.39	0.73	-0.07	0.48	0.89
Less than High School education	11.36	4.57	0.01	1.23	0.59	0.67	0.44	0.63	0.49	-1.67	1.34	0.21	-1.97	1.74	0.26
Currently employed	0.43	1.40	0.76	1.15	0.32	0.60	-0.46	0.25	0.07	-1.44	0.51	0.01	0.23	0.52	0.66
Prior mental health	4.54	1.65	0.01	1.29	0.28	0.23	0.75	0.26	0.00	2.58	0.45	0.00	1.86	0.45	0.00
Direct Exposure	6.11	2.86	0.03	1.45	0.58	0.35	0.89	0.57	0.12	1.37	0.98	0.16	1.04	0.93	0.26
Media Exposure	5.60	0.63	0.00	1.88	0.26	0.00	0.28	0.11	0.01	0.09	0.20	0.67	0.80	0.23	0.00
Previous Community Trauma Exposure	1.77	0.77	0.02	1.06	0.16	0.67	0.29	0.14	0.04	0.42	0.24	0.08	0.81	0.26	0.00
Total Population	0.00	0.00	0.64	1.00	0.00	0.52	0.00	0.00	0.05	0.00	0.00	0.41	0.00	0.00	0.19
Neighborhood income	-0.00	0.00	0.35	1.00	0.00	0.13	-0.00	0.00	0.75	-0.00	0.00	0.06	-0.00	0.00	0.08
Constant	34.80	3.40	0.00	0.10	0.07	0.00	5.85	0.70	0.00	6.65	1.72	0.00	15.59	1.54	0.00
Wald chi-square *(df)*				60.93 (16)***											
F (*df, df)*	7.91 (16, 846)***						7.57 (16, 658)***			5.57 (16, 630)***			9.65 (16, 630)***		
Pseudo Model R-square				0.1156											
Model R-square	0.2003						0.1696			0.1973			0.1790		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 3. Descriptive Statistics by Sampled Area

	Boston Metropolitan Area Sample (*N* = 788)		New York Metropolitan Area Sample (*N* = 901)	
	Mean (*SD*)	Percentage	Mean (*SD*)	Percentage
Age (in years)	51.95(16.42)		52.75(16.49)	
Gender (female = 1)		60.66%		48.39%
Race/ethnicity				
White		87.94%		66.59%
Black		3.68%		11.43%
Hispanic		3.81%		14.98%
Other		2.54%		2.89%
Mixed Race		2.03%		4.11%
Household Income				
less than $24,999 (= 1)		13.71%		16.32%
$25,000 to $49,999 (= 2)		20.69%		15.87%
$50,000 to $74,999 (= 3)		16.75%		17.31%
$75,000 to $99,999 (= 4)		16.75%		15.54%
$100,000 to $124,999 (= 5)		13.32%		14.32%
$125,000 to $149,999 (= 6)		7.36%		6.66%
$150,000 to 174,999 (= 7)		5.08%		4.33%
$175,000 or more (= 8)		6.35%		9.66%
Married/cohabiting		65.86%		59.82%
Less than High School education		2.54%		5.33%
Currently employed		59.39%		53.94%
Prior mental health				
No disorders		80.58%		83.13%
Anxiety or depression		14.72%		12.10%
Both disorders		4.70%		4.77%
Directly exposed to the bombings		32.23%		7.02%
Indirect media exposure				
0 to 1.49 hours (= 0)		10.12%		18.23%
1.5 to 2.9 hours (= 1)		15.24%		24.72%
3 to 5.9 hours (= 2)		31.24%		31.66%
6 hours or more (=3)		43.41%		25.39%
Previous community trauma exposure				
No exposure		77.82%		33.15%
Exposure to 1 event		16.41%		31.69%
Exposure to 2 events		5.38%		32.25%
Exposure to 3 events		0.38%		2.92%
Total Population	1602.01(686.71)		1604.75(791.99)	
Neighborhood income	80318.00(32574.09)		81360.35(39868.16)	
Organization types				
Safety-based organizations				
5 mile count	20.25(20.58)		41.66(31.27)	
3 mile count	8.48(10.10)		17.13(15.05)	
1 mile count	1.39(1.99)		2.43(2.92)	
½ mile count	0.39(0.76)		0.72(1.11)	
Religious organizations				
5 mile count	164.77(188.07)		546.98(584.75)	

3 mile count	71.25(87.39)		233.97(271.74)	
1 mile count	10.63(14.38)		33.10(43.99)	
½ mile count	3.30(5.03)		9.38(13.40)	
Educational organizations				
5 mile count	98.73(105.31)		280.87(305.45)	
3 mile count	41.04(45.19)		122.12(144.02)	
1 mile count	5.92(6.76)		17.47(23.03)	
½ mile count	1.69(2.22)		5.20(7.29)	
Child- and family-promoting organizations				
5 mile count	10.97(16.11)		17.57(20.72)	
3 mile count	4.91(7.73)		7.97(11.09)	
1 mile count	0.70(1.37)		1.22(2.17)	
½ mile count	0.21(0.59)		0.41(0.90)	
Health-based organizations				
5 mile count	10.00(15.09)		8.58(10.76)	
3 mile count	4.35(7.72)		3.97(5.97)	
1 mile count	0.58(1.32)		0.64(1.47)	
½ mile count	0.16(0.55)		0.19(0.55)	
Voluntary community organizations				
5 mile count	14.43(21.68)		36.11(47.13)	
3 mile count	6.18(10.43)		16.40(23.41)	
1 mile count	0.89(1.87)		2.42(4.26)	
½ mile count	0.26(0.84)		0.74(1.53)	
Acute stress scores	44.84(19.31)		44.29(20.78)	
Functional impairment	5.70(2.67)		6.08(3.14)	
Probable PTSD		14.89%		12.75%
Psychological distress	2.75(3.86)		3.80(5.24)	
Fears and worries	15.10(5.03)		16.60(6.03)	

Note. The participant demographics reported are based on wave 1 variables.

Table 4. Boston Metropolitan Area Safety-Based Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.05	0.05	0.29	-0.01	0.01	0.41	1.00	0.01	0.71	-0.01	0.02	0.44	-0.01	0.01	0.41
Black	-3.21	3.24	0.32	-0.25	0.65	0.70	2.97	1.76	0.07	2.05	1.28	0.11	0.13	0.90	0.88
Hispanic	-3.96	3.52	0.26	-0.03	0.58	0.96	0.63	0.69	0.67	1.88	1.10	0.09	0.22	1.00	0.82
Other	7.05	5.28	0.18	-0.14	0.45	0.75	1.45	1.34	0.69	-1.57	1.27	0.22	0.90	0.94	0.34
Mixed Race	8.36	7.50	0.27	-0.12	0.59	0.84	1.56	1.29	0.59	-0.08	1.27	0.95	3.07	1.57	0.05
Female	6.12	1.23	0.00	-0.12	0.20	0.55	1.61	0.41	0.06	1.12	0.41	0.01	0.14	0.29	0.63
Household Income	-1.42	0.40	0.00	-0.17	0.06	0.01	0.90	0.06	0.11	-0.30	0.11	0.01	-0.15	0.07	0.05
Married or Cohabitating	0.42	1.75	0.81	-0.34	0.26	0.20	0.99	0.29	0.99	-0.20	0.51	0.70	-0.71	0.39	0.07
Less than High School Education	-0.52	3.20	0.87	0.23	0.69	0.74	0.29	0.27	0.18	0.63	1.70	0.71	1.54	0.93	0.10
Currently Employed	1.14	1.34	0.40	-0.53	0.21	0.01	0.84	0.22	0.51	0.68	0.49	0.17	-0.70	0.38	0.07
Prior Mental Health	2.69	1.45	0.06	1.14	0.21	0.00	1.40	0.26	0.07	0.83	0.38	0.03	1.69	0.37	0.00
Direct Exposure	3.46	1.69	0.04	-0.04	0.23	0.86	1.09	0.31	0.77	0.67	0.47	0.16	0.50	0.37	0.18
Media Exposure	3.76	0.67	0.00	0.19	0.10	0.05	2.24	0.36	0.00	0.60	0.24	0.01	0.35	0.17	0.04
Previous Community Trauma Exposure	4.15	1.49	0.01	0.36	0.20	0.07	1.05	0.22	0.81	0.33	0.40	0.41	0.20	0.28	0.48
Total population	0.00	0.00	0.65	0.00	0.00	0.24	1.00	0.00	0.43	-0.00	0.00	0.42	-0.00	0.00	0.03
Neighborhood Income	0.00	0.00	0.19	0.00	0.00	0.93	1.00	0.00	0.87	-0.00	0.00	0.14	0.00	0.00	0.61
Count of Organizations															
<.5 miles ("Immediate Environment")	0.31	1.01	0.76	0.34	0.16	0.04	0.75	0.15	0.15	-0.23	0.34	0.50	0.12	0.26	0.65

.5 miles to < 1 mile ("Proximal Environment")	1.25	0.82	0.13	0.21	0.10	0.03	1.22	0.12	0.05	-0.17	0.20	0.39	0.40	0.16	0.01
1 mile to < 3 miles ("Near-Distal Environment")	-0.20	0.19	0.29	-0.04	0.03	0.17	0.96	0.03	0.20	-0.03	0.05	0.55	-0.11	0.04	0.01
3 miles to < 5 miles ("Distal Environment")	0.14	0.11	0.23	0.01	0.02	0.76	1.02	0.02	0.31	0.03	0.03	0.35	0.04	0.03	0.12
Constant	32.22	4.69	0.00	6.02	0.72	0.00	0.03	0.02	0.00	15.44	1.58	0.00	3.71	1.23	0.00
Wald chi-square (*df*)							56.35 (20)***								
F (*df, df)*	6.16 (20, 615)***			3.82 (20, 520)***						3.18 (20, 462)***			3.76 (20, 464)***		
Pseudo Model R-square							0.1075								
Model R-square	0.1674			0.1458						0.1077			0.1677		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 5. Boston Metropolitan Area Religious Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.05	0.05	0.27	-0.01	0.01	0.33	1.00	0.01	0.90	-0.01	0.02	0.43	-0.01	0.01	0.37
Black	-4.04	3.33	0.23	-0.34	0.70	0.63	3.45	2.06	0.04	2.32	1.36	0.09	-0.07	0.96	0.94
Hispanic	-3.74	3.65	0.31	0.07	0.61	0.90	0.64	0.70	0.68	1.89	1.15	0.10	0.30	1.03	0.77
Other	6.93	5.19	0.18	-0.26	0.46	0.57	1.24	1.18	0.82	-1.62	1.22	0.19	0.97	0.93	0.30
Mixed Race	8.80	7.41	0.24	-0.02	0.57	0.98	1.97	1.61	0.41	-0.10	1.33	0.94	3.10	1.56	0.05
Female	6.27	1.21	0.00	-0.09	0.20	0.65	1.63	0.41	0.05	1.16	0.40	0.00	0.19	0.29	0.51
Household Income	-1.42	0.41	0.00	-0.17	0.06	0.00	0.90	0.06	0.12	-0.30	0.12	0.01	-0.14	0.08	0.06
Married/Cohabitating	0.26	1.77	0.88	-0.33	0.26	0.21	0.96	0.28	0.90	-0.21	0.51	0.68	-0.78	0.39	0.05
Less than High School Education	-0.34	3.08	0.91	0.33	0.70	0.64	0.33	0.30	0.23	0.68	1.70	0.69	1.58	0.91	0.08
Currently Employed	0.88	1.36	0.52	-0.57	0.22	0.01	0.80	0.21	0.40	0.68	0.49	0.17	-0.74	0.39	0.06
Prior Mental Health	2.63	1.44	0.07	1.16	0.21	0.00	1.31	0.23	0.13	0.80	0.38	0.04	1.64	0.37	0.00
Direct Exposure	3.47	1.71	0.04	-0.05	0.23	0.85	1.03	0.29	0.92	0.60	0.48	0.21	0.46	0.38	0.22
Media Exposure	3.69	0.65	0.00	0.17	0.09	0.07	2.16	0.36	0.00	0.61	0.24	0.01	0.34	0.17	0.05
Previous Community Trauma Exposure	4.19	1.60	0.01	0.37	0.20	0.06	1.04	0.21	0.85	0.33	0.40	0.40	0.14	0.28	0.61
Total population	0.00	0.00	0.64	0.00	0.00	0.27	1.00	0.00	0.61	-0.00	0.00	0.53	-0.00	0.00	0.03
Neighborhood Income	0.00	0.00	0.22	-0.00	0.00	0.79	1.00	0.00	0.81	-0.00	0.00	0.22	0.00	0.00	0.84
Count of Organizations															
<.5 miles ("Immediate Environment")	0.07	0.20	0.73	-0.01	0.03	0.87	1.01	0.04	0.80	0.05	0.09	0.61	-0.02	0.05	0.75
.5 miles to < 1 mile ("Proximal Environment")	-0.03	0.13	0.84	0.00	0.02	0.96	0.96	0.03	0.13	-0.04	0.05	0.37	0.00	0.03	0.95

1 mile to < 5 miles ("Outside Environment")	0.01	0.01	0.26	0.00	0.00	0.64	1.00	0.00	0.15	0.00	0.00	0.65	0.00	0.00	0.90
Constant	33.12	4.63	0.00	6.31	0.74	0.00	0.04	0.03	0.00	15.16	1.59	0.00	4.11	1.33	0.00
Wald chi-square (*df*)							52.40 (19)***								
F (*df, df)*	6.31 (19, 615)***			3.76 (19, 520)***						3.29 (19, 462)***			3.48 (19, 464)***		
Pseudo Model R-square							0.1003								
Model R-square	0.1608			0.1294						0.1048			0.1500		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 6. Boston Metropolitan Area Educational Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.05	0.05	0.27	-0.01	0.01	0.31	1.00	0.01	0.79	-0.01	0.02	0.45	-0.01	0.01	0.34
Black	-3.89	3.34	0.25	-0.43	0.68	0.53	2.76	1.64	0.09	2.07	1.30	0.11	-0.03	0.95	0.97
Hispanic	-3.78	3.57	0.29	0.00	0.60	1.00	0.61	0.68	0.66	1.86	1.14	0.10	0.28	1.03	0.78
Other	7.11	5.27	0.18	-0.32	0.47	0.50	1.30	1.23	0.78	-1.76	1.23	0.15	0.92	0.95	0.33
Mixed Race	9.11	7.36	0.22	-0.18	0.63	0.77	1.62	1.35	0.56	-0.47	1.39	0.73	3.07	1.60	0.06
Female	6.25	1.23	0.00	-0.10	0.20	0.62	1.63	0.41	0.05	1.11	0.40	0.01	0.19	0.29	0.52
Household Income	-1.44	0.41	0.00	-0.17	0.06	0.01	0.90	0.06	0.13	-0.30	0.12	0.01	-0.14	0.08	0.06
Married/Cohabitating	0.29	1.75	0.87	-0.33	0.27	0.22	1.00	0.29	1.00	-0.18	0.51	0.72	-0.78	0.39	0.05
Less than High School Education	-0.40	3.04	0.90	0.34	0.70	0.63	0.34	0.34	0.29	0.72	1.70	0.68	1.58	0.92	0.09
Currently Employed	0.90	1.35	0.50	-0.57	0.22	0.01	0.80	0.21	0.39	0.69	0.49	0.16	-0.74	0.39	0.06
Prior Mental Health	2.76	1.46	0.06	1.12	0.21	0.00	1.31	0.24	0.15	0.75	0.38	0.05	1.63	0.37	0.00
Direct Exposure	3.53	1.70	0.04	-0.04	0.23	0.86	1.08	0.30	0.79	0.60	0.47	0.20	0.43	0.37	0.25
Media Exposure	3.71	0.65	0.00	0.16	0.09	0.10	2.18	0.36	0.00	0.60	0.24	0.01	0.34	0.18	0.06
Previous Community Trauma Exposure	4.21	1.59	0.01	0.36	0.20	0.08	1.01	0.21	0.98	0.31	0.39	0.43	0.16	0.28	0.57
Total population	0.00	0.00	0.65	0.00	0.00	0.27	1.00	0.00	0.54	-0.00	0.00	0.56	-0.00	0.00	0.04
Neighborhood Income	0.00	0.00	0.29	-0.00	0.00	0.97	1.00	0.00	0.99	-0.00	0.00	0.23	0.00	0.00	0.98
Count of Organizations															
<.5 miles ("Immediate Environment")	-0.39	0.46	0.40	0.11	0.08	0.18	1.01	0.08	0.84	0.20	0.16	0.23	0.00	0.13	1.00
.5 miles to < 1 mile ("Proximal Environment")	0.11	0.26	0.69	-0.03	0.05	0.56	0.99	0.04	0.75	-0.11	0.08	0.18	-0.05	0.06	0.45

1 mile to < 5 miles ("Outside Environment")	0.01	0.01	0.29	0.00	0.00	0.85	1.00	0.00	0.74	0.00	0.00	0.74	0.00	0.00	0.51
Constant	33.58	4.61	0.00	6.24	0.74	0.00	0.03	0.03	0.00	15.17	1.58	0.00	4.24	1.37	0.00
Wald chi-square (*df*)							49.68 (19)***								
F (*df, df)*	6.37 (19, 615)***			3.66 (19, 520)***						3.37 (19, 462)***			3.40 (19, 464)***		
Pseudo Model R-square							0.0938								
Model R-square	0.1619			0.1336						0.1085			0.1510		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 7. Boston Metropolitan Area Child- and Family-Promoting Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.26	-0.01	0.01	0.29	1.00	0.01	0.87	-0.01	0.02	0.40	-0.01	0.01	0.39
Black	-2.94	3.46	0.40	-0.30	0.73	0.68	3.81	2.31	0.03	2.39	1.29	0.07	-0.30	0.95	0.75
Hispanic	-3.94	3.46	0.26	0.08	0.60	0.90	0.62	0.68	0.66	1.72	1.09	0.12	0.34	1.04	0.75
Other	6.88	5.42	0.20	-0.32	0.46	0.49	1.26	1.22	0.81	-1.57	1.20	0.19	0.94	0.90	0.30
Mixed Race	8.83	7.41	0.23	-0.23	0.58	0.69	1.73	1.49	0.52	-0.21	1.32	0.88	3.00	1.56	0.05
Female	6.26	1.22	0.00	-0.09	0.20	0.66	1.67	0.43	0.05	1.16	0.40	0.00	0.16	0.30	0.60
Household Income	-1.45	0.42	0.00	-0.17	0.06	0.01	0.89	0.06	0.10	-0.31	0.12	0.01	-0.13	0.08	0.09
Married/Cohabitating	0.19	1.72	0.91	-0.37	0.27	0.16	0.99	0.29	0.96	-0.19	0.51	0.71	-0.82	0.39	0.04
Less than High School Education	-0.30	3.02	0.92	0.32	0.70	0.65	0.31	0.28	0.20	0.69	1.69	0.68	1.54	0.91	0.09
Currently Employed	0.86	1.37	0.53	-0.60	0.22	0.01	0.77	0.21	0.33	0.63	0.50	0.21	-0.73	0.39	0.06
Prior Mental Health	2.70	1.45	0.06	1.14	0.21	0.00	1.30	0.24	0.16	0.81	0.39	0.04	1.61	0.37	0.00
Direct Exposure	3.51	1.69	0.04	-0.07	0.24	0.78	1.07	0.30	0.81	0.59	0.47	0.22	0.48	0.38	0.21
Media Exposure	3.70	0.66	0.00	0.19	0.10	0.06	2.23	0.37	0.00	0.64	0.24	0.01	0.35	0.17	0.05
Previous Community Trauma Exposure	4.30	1.52	0.01	0.34	0.20	0.09	1.04	0.22	0.85	0.33	0.39	0.40	0.11	0.28	0.70
Total population	0.00	0.00	0.62	0.00	0.00	0.28	1.00	0.00	0.57	-0.00	0.00	0.54	-0.00	0.00	0.03
Neighborhood Income	0.00	0.00	0.25	-0.00	0.00	1.00	1.00	0.00	0.99	-0.00	0.00	0.29	0.00	0.00	0.71
Count of Organizations															
<.5 miles ("Immediate Environment")	0.64	1.36	0.64	0.21	0.23	0.35	1.03	0.26	0.90	0.19	0.46	0.68	0.03	0.31	0.93
.5 miles to < 1 mile ("Proximal Environment")	-1.16	0.97	0.23	-0.04	0.15	0.77	0.71	0.11	0.02	-0.42	0.23	0.07	0.28	0.19	0.13

1 mile to < 3 miles ("Near-Distal Environment")	0.14	0.36	0.69	0.05	0.05	0.28	1.03	0.04	0.43	0.06	0.07	0.40	-0.01	0.06	0.87
3 miles to < 5 miles ("Distal Environment")	0.12	0.18	0.50	-0.04	0.03	0.16	1.00	0.03	0.88	-0.03	0.05	0.56	-0.02	0.04	0.60
Constant	33.78	4.24	0.00	6.32	0.72	0.00	0.03	0.02	0.00	15.17	1.54	0.00	4.03	1.28	0.00
Wald chi-square (*df*)							56.56 (20)***								
F (*df, df)*	6.13 (20, 615)***			3.67 (20, 520)***						3.30 (20, 462)***			3.38 (20, 464)***		
Pseudo Model R-square							0.1052								
Model R-square	0.1644			0.1349						0.1079			0.1540		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 8. Boston Metropolitan Area Health-Based Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.24	-0.01	0.01	0.34	1.00	0.01	0.79	-0.01	0.02	0.41	-0.01	0.01	0.39
Black	-4.32	3.28	0.19	-0.41	0.67	0.55	2.88	1.67	0.07	2.03	1.24	0.10	-0.01	0.89	0.99
Hispanic	-3.91	3.49	0.26	0.10	0.59	0.86	0.62	0.67	0.66	1.54	1.06	0.15	0.30	1.05	0.78
Other	7.03	5.12	0.17	-0.30	0.46	0.51	1.38	1.28	0.73	-1.56	1.25	0.21	0.87	0.91	0.34
Mixed Race	9.10	7.36	0.22	-0.02	0.59	0.97	1.69	1.40	0.52	-0.12	1.30	0.93	3.02	1.58	0.06
Female	6.15	1.21	0.00	-0.08	0.20	0.69	1.63	0.41	0.05	1.12	0.40	0.01	0.21	0.29	0.46
Household Income	-1.41	0.40	0.00	-0.17	0.06	0.01	0.90	0.06	0.13	-0.30	0.11	0.01	-0.14	0.08	0.07
Married/Cohabitating	0.20	1.72	0.91	-0.31	0.27	0.24	0.97	0.28	0.93	-0.15	0.50	0.76	-0.75	0.39	0.06
Less than High School Education	-0.31	3.10	0.92	0.37	0.72	0.60	0.32	0.32	0.26	0.59	1.70	0.73	1.63	0.92	0.08
Currently Employed	0.73	1.37	0.59	-0.56	0.22	0.01	0.79	0.21	0.37	0.55	0.50	0.27	-0.75	0.39	0.06
Prior Mental Health	2.64	1.45	0.07	1.14	0.21	0.00	1.34	0.24	0.11	0.81	0.39	0.04	1.61	0.37	0.00
Direct Exposure	3.68	1.69	0.03	-0.06	0.23	0.80	1.09	0.31	0.76	0.70	0.48	0.14	0.44	0.38	0.25
Media Exposure	3.65	0.64	0.00	0.17	0.09	0.07	2.20	0.36	0.00	0.63	0.24	0.01	0.35	0.17	0.05
Previous Community Trauma Exposure	4.17	1.57	0.01	0.35	0.21	0.09	1.02	0.22	0.93	0.39	0.41	0.34	0.14	0.28	0.61
Total population	0.00	0.00	0.62	0.00	0.00	0.22	1.00	0.00	0.53	-0.00	0.00	0.54	-0.00	0.00	0.04
Neighborhood Income	0.00	0.00	0.29	-0.00	0.00	0.88	1.00	0.00	0.96	-0.00	0.00	0.14	0.00	0.00	0.73
Count of Organizations															
<.5 miles ("Immediate Environment")	0.14	1.40	0.92	0.35	0.20	0.08	0.83	0.22	0.49	0.25	0.48	0.61	0.48	0.37	0.20
.5 miles to < 1 mile ("Proximal Environment")	-0.75	0.90	0.41	0.05	0.15	0.71	0.93	0.13	0.62	-0.71	0.31	0.02	-0.01	0.21	0.96

1 mile to < 3 miles ("Near-Distal Environment")	-0.06	0.17	0.72	-0.02	0.03	0.50	1.00	0.03	0.85	0.01	0.06	0.80	-0.01	0.04	0.74
3 miles to < 5 miles ("Distal Environment")	0.28	0.14	0.05	0.01	0.02	0.48	1.01	0.02	0.51	0.03	0.03	0.46	0.00	0.03	0.95
Constant	34.03	4.29	0.00	6.19	0.73	0.00	0.03	0.02	0.00	15.29	1.55	0.00	3.86	1.28	0.00
Wald chi-square (*df*)							50.25 (20)***								
F (*df, df)*	6.06 (20, 615)***			3.72 (20, 520)***						3.26 (20, 462)***			3.37 (20, 464)***		
Pseudo Model R-square							0.0957								
Model R-square	0.1667			0.1342						0.1122			0.1532		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 9. Boston Metropolitan Area Voluntary Community Organizations

	Acute Stress (Nobs =776; Nclusters = 616)			Functional Impairment (Nobs =648; Nclusters = 521)			Probable PTSD (Nobs =648; Nclusters = 522)			Fears and Worries (Nobs =570; Nclusters = 463)			Psychological Distress (Nobs =572; Nclusters = 465)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.25	-0.01	0.01	0.37	1.00	0.01	0.75	-0.01	0.02	0.43	-0.01	0.01	0.37
Black	-3.20	3.37	0.34	-0.59	0.71	0.41	2.72	1.67	0.10	2.16	1.32	0.10	-0.32	0.96	0.74
Hispanic	-3.55	3.53	0.31	0.03	0.61	0.96	0.60	0.66	0.64	1.71	1.09	0.12	0.33	1.05	0.75
Other	6.79	5.23	0.20	-0.19	0.46	0.68	1.38	1.27	0.73	-1.51	1.18	0.20	0.92	0.92	0.32
Mixed Race	9.20	7.46	0.22	-0.18	0.58	0.75	1.72	1.40	0.51	-0.13	1.32	0.92	2.98	1.56	0.06
Female	6.17	1.21	0.00	-0.07	0.20	0.71	1.64	0.41	0.05	1.14	0.41	0.01	0.21	0.30	0.49
Household Income	-1.43	0.41	0.00	-0.18	0.06	0.01	0.90	0.06	0.14	-0.30	0.12	0.01	-0.14	0.08	0.06
Married/Cohabitating	0.24	1.72	0.89	-0.33	0.27	0.21	0.99	0.29	0.98	-0.24	0.51	0.64	-0.76	0.40	0.06
Less than High School Education	-0.51	3.08	0.87	0.33	0.67	0.62	0.33	0.33	0.27	0.70	1.73	0.69	1.55	0.94	0.10
Currently Employed	0.86	1.35	0.53	-0.58	0.22	0.01	0.79	0.21	0.38	0.66	0.50	0.18	-0.75	0.39	0.06
Prior Mental Health	2.75	1.44	0.06	1.14	0.21	0.00	1.32	0.24	0.13	0.82	0.38	0.03	1.61	0.37	0.00
Direct Exposure	3.55	1.70	0.04	-0.07	0.23	0.75	1.08	0.30	0.78	0.62	0.47	0.19	0.47	0.37	0.21
Media Exposure	3.68	0.65	0.00	0.17	0.10	0.08	2.19	0.36	0.00	0.64	0.24	0.01	0.34	0.17	0.05
Previous Community Trauma Exposure	4.11	1.62	0.01	0.38	0.20	0.06	1.00	0.21	1.00	0.35	0.39	0.37	0.14	0.28	0.61
Total population	0.00	0.00	0.63	0.00	0.00	0.35	1.00	0.00	0.51	-0.00	0.00	0.56	-0.00	0.00	0.02
Neighborhood Income	0.00	0.00	0.30	0.00	0.00	0.86	1.00	0.00	0.95	-0.00	0.00	0.18	0.00	0.00	0.64
Count of Organizations															
<.5 miles ("Immediate Environment")	-1.33	0.98	0.18	0.01	0.14	0.96	0.93	0.22	0.77	0.09	0.33	0.79	0.23	0.23	0.32
.5 miles to < 1 mile ("Proximal Environment")	-0.37	0.96	0.70	-0.06	0.09	0.51	1.01	0.13	0.93	-0.41	0.24	0.09	0.21	0.18	0.24

1 mile to < 3 miles ("Near-Distal Environment")	0.03	0.16	0.86	0.07	0.03	0.03	1.01	0.02	0.72	-0.01	0.06	0.91	-0.01	0.04	0.82
3 miles to < 5 miles ("Distal Environment")	0.16	0.11	0.14	-0.03	0.02	0.08	1.00	0.02	0.87	0.03	0.03	0.43	-0.01	0.02	0.52
Constant	34.05	4.26	0.00	6.23	0.73	0.00	0.03	0.02	0.00	15.20	1.55	0.00	3.99	1.28	0.00
Wald chi-square (*df*)							51.76 (20)***								
F (*df, df)*	6.03 (20, 615)***			4.01 (20, 520)***						3.29 (20, 462)***			3.53 (20, 464)***		
Pseudo Model R-square							0.0938								
Model R-square	0.1644			0.1400						0.1084			0.1542		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 10. New York Metropolitan Area Safety-Based Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.61	0.00	0.01	0.92	0.99	0.01	0.09	-0.01	0.02	0.54	-0.04	0.02	0.03
Black	-3.27	2.03	0.11	0.29	0.45	0.51	1.41	0.55	0.38	1.00	0.80	0.21	1.07	0.78	0.18
Hispanic	2.53	2.10	0.23	0.30	0.33	0.37	0.83	0.34	0.66	1.08	0.77	0.16	1.24	0.86	0.15
Other	10.98	5.66	0.05	0.41	0.73	0.57	3.74	2.27	0.03	-0.74	1.71	0.67	2.02	1.57	0.20
Mixed Race	10.11	4.31	0.02	0.65	0.78	0.41	2.07	1.29	0.24	0.36	1.33	0.79	0.71	1.28	0.58
Female	3.45	1.28	0.01	0.75	0.24	0.00	1.42	0.38	0.19	1.74	0.47	0.00	0.43	0.41	0.30
Household Income	-1.11	0.33	0.00	-0.34	0.06	0.00	0.90	0.07	0.17	-0.47	0.11	0.00	-0.27	0.09	0.00
Married/Cohabitating	-0.26	1.52	0.87	-0.18	0.27	0.50	1.12	0.29	0.67	-0.11	0.48	0.81	-0.23	0.40	0.56
Less than High School Education	11.29	4.62	0.02	0.42	0.64	0.51	1.18	0.58	0.74	-2.08	1.79	0.25	-1.66	1.34	0.22
Currently Employed	0.39	1.40	0.78	-0.45	0.25	0.07	1.15	0.32	0.63	0.25	0.52	0.64	-1.43	0.51	0.01
Prior Mental Health	4.50	1.67	0.01	0.75	0.26	0.00	1.30	0.29	0.23	1.84	0.44	0.00	2.64	0.45	0.00
Direct Exposure	6.10	2.88	0.04	0.92	0.56	0.10	1.53	0.64	0.31	1.05	0.94	0.26	1.44	0.97	0.14
Media Exposure	5.58	0.64	0.00	0.29	0.11	0.01	1.88	0.26	0.00	0.82	0.23	0.00	0.08	0.20	0.69
Previous Community Trauma Exposure	1.76	0.77	0.02	0.28	0.14	0.04	1.06	0.16	0.72	0.80	0.26	0.00	0.44	0.24	0.07
Total population (block group)	0.00	0.00	0.60	0.00	0.00	0.07	1.00	0.00	0.47	0.00	0.00	0.27	0.00	0.00	0.41
Neighborhood Income (block group)	-0.00	0.00	0.35	-0.00	0.00	0.73	1.00	0.00	0.12	-0.00	0.00	0.08	-0.00	0.00	0.04
Count of Organizations															
<.5 miles ("Immediate Environment")	0.22	0.74	0.77	-0.12	0.12	0.30	0.85	0.11	0.24	-0.24	0.23	0.29	-0.20	0.20	0.32
.5 miles to < 1 mile ("Proximal Environment")	-0.23	0.42	0.58	-0.01	0.07	0.91	0.94	0.07	0.44	-0.04	0.13	0.78	-0.02	0.12	0.87

1 mile to < 3 miles ("Near-Distal Environment")	0.03	0.11	0.78	0.01	0.02	0.39	1.01	0.02	0.46	0.05	0.03	0.17	-0.02	0.03	0.45
3 miles to < 5 miles ("Distal Environment")	-0.00	0.07	0.98	-0.01	0.01	0.43	1.00	0.01	0.86	-0.03	0.02	0.11	0.01	0.02	0.50
Constant	34.68	3.50	0.00	6.01	0.72	0.00	0.12	0.09	0.01	16.14	1.59	0.00	6.93	1.76	0.00
Wald chi-square (*df*)							65.86 (20)***								
F (*df, df)*	6.56 (20, 846)***			6.29 (20, 658)***						7.76 (20, 630)***			4.71 (20, 630)***		
Pseudo Model R-square							0.1203								
Model R-square	0.2007			0.1716						0.1837			0.2014		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 11. New York Metropolitan Area Religious Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.59	0.00	0.01	0.85	0.99	0.01	0.13	-0.01	0.02	0.58	-0.04	0.02	0.03
Black	-4.12	2.12	0.05	0.26	0.47	0.57	1.26	0.55	0.59	0.86	0.85	0.31	0.97	0.82	0.24
Hispanic	1.98	2.08	0.34	0.26	0.33	0.42	0.79	0.32	0.57	1.06	0.78	0.18	1.16	0.88	0.19
Other	10.73	5.61	0.06	0.38	0.73	0.60	3.51	2.18	0.04	-0.75	1.64	0.65	1.85	1.52	0.22
Mixed Race	9.34	4.28	0.03	0.69	0.78	0.38	1.94	1.20	0.28	0.26	1.36	0.85	0.73	1.29	0.57
Female	3.46	1.27	0.01	0.75	0.24	0.00	1.43	0.38	0.17	1.71	0.47	0.00	0.45	0.42	0.28
Household Income	-1.13	0.34	0.00	-0.34	0.06	0.00	0.91	0.07	0.20	-0.47	0.11	0.00	-0.26	0.09	0.00
Married/Cohabitating	-0.04	1.51	0.98	-0.14	0.27	0.61	1.18	0.31	0.53	-0.09	0.48	0.85	-0.12	0.39	0.76
Less than High School Education	11.33	4.54	0.01	0.44	0.64	0.50	1.27	0.61	0.61	-1.96	1.76	0.27	-1.66	1.35	0.22
Currently Employed	0.51	1.41	0.72	-0.47	0.25	0.06	1.15	0.32	0.61	0.21	0.52	0.69	-1.43	0.51	0.01
Prior Mental Health	4.54	1.65	0.01	0.75	0.26	0.00	1.29	0.28	0.23	1.89	0.45	0.00	2.57	0.46	0.00
Direct Exposure	6.26	2.83	0.03	0.89	0.57	0.12	1.47	0.60	0.34	1.07	0.94	0.26	1.36	0.97	0.16
Media Exposure	5.65	0.63	0.00	0.28	0.11	0.01	1.89	0.26	0.00	0.80	0.23	0.00	0.09	0.20	0.67
Previous Community Trauma Exposure	1.69	0.76	0.03	0.28	0.14	0.04	1.07	0.16	0.63	0.82	0.26	0.00	0.42	0.23	0.07
Total population (block group)	0.00	0.00	0.68	0.00	0.00	0.05	1.00	0.00	0.56	0.00	0.00	0.24	0.00	0.00	0.40
Neighborhood Income (block group)	-0.00	0.00	0.50	-0.00	0.00	0.81	1.00	0.00	0.19	-0.00	0.00	0.07	-0.00	0.00	0.07
Count of Organizations															
<.5 miles ("Immediate Environment")	-0.21	0.11	0.06	-0.00	0.02	0.85	0.99	0.02	0.43	-0.04	0.03	0.20	0.01	0.03	0.70
.5 miles to < 1 mile ("Proximal Environment")	0.11	0.05	0.05	-0.00	0.01	0.94	1.01	0.01	0.22	0.02	0.02	0.20	-0.00	0.02	0.88

1 mile to < 5 miles ("Outside Environment")	-0.00	0.00	0.98	0.00	0.00	0.58	1.00	0.00	0.62	-0.00	0.00	0.38	0.00	0.00	0.95
Constant	34.18	3.52	0.00	5.76	0.73	0.00	0.09	0.07	0.00	15.95	1.55	0.00	6.52	1.70	0.00
Wald chi-square (*df*)							68.58 (19)***								
F (*df, df)*	7.12 (19, 846)***			6.43 (19, 658)***						8.39 (19, 630)***			4.74 (19, 630)***		
Pseudo Model R-square							0.1191								
Model R-square	0.2069			0.1702						0.1824			0.1976		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 12. New York Metropolitan Area Educational Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.57	0.00	0.01	0.84	0.99	0.01	0.13	-0.01	0.02	0.61	-0.04	0.02	0.03
Black	-3.70	2.05	0.07	0.27	0.46	0.55	1.38	0.57	0.44	0.98	0.81	0.22	1.06	0.81	0.19
Hispanic	2.24	2.06	0.28	0.27	0.32	0.40	0.82	0.33	0.61	1.15	0.77	0.13	1.22	0.88	0.16
Other	10.40	5.62	0.07	0.39	0.74	0.60	3.59	2.23	0.04	-0.59	1.71	0.73	1.94	1.57	0.22
Mixed Race	10.06	4.34	0.02	0.68	0.77	0.38	2.10	1.31	0.24	0.52	1.34	0.70	0.72	1.29	0.58
Female	3.42	1.28	0.01	0.75	0.24	0.00	1.42	0.37	0.19	1.71	0.47	0.00	0.46	0.41	0.27
Household Income	-1.13	0.33	0.00	-0.34	0.06	0.00	0.90	0.07	0.18	-0.47	0.11	0.00	-0.26	0.09	0.00
Married/Cohabitating	-0.03	1.51	0.99	-0.15	0.28	0.60	1.18	0.31	0.54	-0.09	0.48	0.85	-0.14	0.39	0.73
Less than High School Education	11.72	4.54	0.01	0.46	0.64	0.47	1.23	0.59	0.67	-2.03	1.75	0.25	-1.66	1.34	0.22
Currently Employed	0.52	1.41	0.71	-0.46	0.25	0.06	1.17	0.32	0.57	0.24	0.52	0.64	-1.43	0.51	0.01
Prior Mental Health	4.69	1.65	0.01	0.75	0.26	0.00	1.32	0.29	0.20	1.94	0.44	0.00	2.60	0.46	0.00
Direct Exposure	6.24	2.81	0.03	0.89	0.57	0.12	1.48	0.59	0.33	1.08	0.94	0.25	1.38	0.98	0.16
Media Exposure	5.54	0.63	0.00	0.28	0.11	0.01	1.87	0.26	0.00	0.77	0.23	0.00	0.08	0.20	0.68
Previous Community Trauma Exposure	1.70	0.76	0.03	0.28	0.14	0.04	1.06	0.16	0.71	0.80	0.26	0.00	0.41	0.23	0.08
Total population (block group)	0.00	0.00	0.55	0.00	0.00	0.05	1.00	0.00	0.51	0.00	0.00	0.20	0.00	0.00	0.40
Neighborhood Income (block group)	-0.00	0.00	0.39	-0.00	0.00	0.80	1.00	0.00	0.15	-0.00	0.00	0.06	-0.00	0.00	0.06
Count of Organizations															
<.5 miles ("Immediate Environment")	-0.41	0.20	0.04	0.01	0.03	0.72	0.97	0.03	0.38	-0.10	0.06	0.06	-0.02	0.06	0.75
.5 miles to < 1 mile ("Proximal Environment")	0.03	0.12	0.81	-0.01	0.02	0.57	1.00	0.02	0.89	0.01	0.03	0.74	-0.01	0.03	0.81

1 mile to < 5 miles ("Outside Environment")	0.01	0.01	0.14	0.00	0.00	0.69	1.00	0.00	0.49	0.00	0.00	0.53	0.00	0.00	0.60
Constant	34.20	3.46	0.00	5.77	0.73	0.00	0.10	0.07	0.00	15.84	1.55	0.00	6.64	1.69	0.00
Wald chi-square (*df*)							68.97 (19)***								
F (*df, df)*	6.83 (19, 846)***			6.52 (19, 658)***						8.19 (19, 630)***			4.77 (19, 630)***		
Pseudo Model R-square							0.1173								
Model R-square	0.2062			0.1703						0.1837			0.1977		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 13. New York Metropolitan Area Child- and Family-Promoting Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.70	0.00	0.01	0.80	0.99	0.01	0.15	-0.01	0.02	0.61	-0.04	0.02	0.03
Black	-3.29	2.12	0.12	0.24	0.46	0.61	1.22	0.54	0.66	1.12	0.84	0.18	1.14	0.83	0.17
Hispanic	2.42	2.07	0.24	0.26	0.32	0.42	0.82	0.33	0.63	1.12	0.78	0.15	1.22	0.89	0.18
Other	10.35	5.69	0.07	0.36	0.75	0.64	3.48	2.28	0.06	-0.57	1.72	0.74	2.04	1.59	0.20
Mixed Race	10.19	4.25	0.02	0.69	0.77	0.37	1.99	1.25	0.27	0.55	1.37	0.69	0.82	1.28	0.52
Female	3.29	1.27	0.01	0.75	0.24	0.00	1.39	0.37	0.21	1.69	0.47	0.00	0.46	0.41	0.27
Household Income	-1.04	0.33	0.00	-0.33	0.06	0.00	0.92	0.07	0.24	-0.46	0.11	0.00	-0.26	0.09	0.00
Married/Cohabitating	-0.40	1.50	0.79	-0.18	0.28	0.52	1.19	0.32	0.52	-0.16	0.49	0.75	-0.20	0.40	0.62
Less than High School Education	11.16	4.68	0.02	0.42	0.64	0.52	1.12	0.58	0.83	-2.15	1.77	0.22	-1.77	1.35	0.19
Currently Employed	0.40	1.41	0.77	-0.47	0.25	0.06	1.15	0.31	0.62	0.20	0.52	0.70	-1.48	0.52	0.01
Prior Mental Health	4.58	1.65	0.01	0.74	0.26	0.01	1.32	0.29	0.20	1.90	0.45	0.00	2.57	0.47	0.00
Direct Exposure	6.07	2.88	0.04	0.89	0.56	0.12	1.45	0.57	0.34	1.00	0.94	0.29	1.37	0.98	0.16
Media Exposure	5.64	0.64	0.00	0.29	0.11	0.01	1.90	0.26	0.00	0.80	0.23	0.00	0.10	0.20	0.63
Previous Community Trauma Exposure	1.72	0.77	0.03	0.29	0.14	0.04	1.07	0.16	0.62	0.79	0.26	0.00	0.40	0.23	0.09
Total population (block group)	0.00	0.00	0.50	0.00	0.00	0.04	1.00	0.00	0.45	0.00	0.00	0.20	0.00	0.00	0.39
Neighborhood Income (block group)	-0.00	0.00	0.35	-0.00	0.00	0.78	1.00	0.00	0.20	-0.00	0.00	0.06	-0.00	0.00	0.06
Count of Organizations															
<.5 miles ("Immediate Environment")	-0.87	1.09	0.43	0.11	0.17	0.51	0.78	0.14	0.18	-0.03	0.30	0.93	0.19	0.34	0.58
.5 miles to < 1 mile ("Proximal Environment")	-1.22	0.67	0.07	-0.14	0.12	0.22	1.06	0.14	0.68	-0.33	0.31	0.30	-0.30	0.30	0.32

1 mile to < 3 miles ("Near-Distal Environment")	0.31	0.18	0.08	0.03	0.03	0.32	1.04	0.03	0.20	0.05	0.05	0.33	0.03	0.05	0.52
3 miles to < 5 miles ("Distal Environment")	-0.04	0.09	0.70	-0.01	0.01	0.59	0.98	0.02	0.26	-0.03	0.03	0.31	-0.01	0.02	0.74
Constant	33.81	3.50	0.00	5.76	0.73	0.00	0.08	0.06	0.00	15.89	1.55	0.00	6.70	1.69	0.00
Wald chi-square (*df*)							70.21 (20)***								
F (*df, df)*	6.38 (20, 846)***			6.53 (20, 658)***						7.88 (20, 630)***			4.58 (20, 630)***		
Pseudo Model R-square							0.1244								
Model R-square	0.2062			0.1724						0.1826			0.2004		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 14. New York Metropolitan Area Health-Based Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.61	0.00	0.01	0.86	0.99	0.01	0.13	-0.01	0.02	0.69	-0.04	0.02	0.03
Black	-3.52	1.99	0.08	0.20	0.45	0.65	1.42	0.56	0.37	1.08	0.80	0.18	1.22	0.77	0.11
Hispanic	2.13	2.09	0.31	0.25	0.32	0.44	0.81	0.32	0.59	1.22	0.77	0.11	1.39	0.87	0.11
Other	10.44	5.75	0.07	0.49	0.72	0.50	3.46	2.21	0.05	-0.77	1.72	0.65	1.90	1.64	0.25
Mixed Race	9.74	4.36	0.03	0.72	0.78	0.35	2.11	1.30	0.22	0.44	1.35	0.75	0.83	1.27	0.52
Female	3.53	1.28	0.01	0.74	0.24	0.00	1.44	0.38	0.16	1.74	0.47	0.00	0.48	0.41	0.25
Household Income	-1.09	0.33	0.00	-0.34	0.06	0.00	0.91	0.07	0.20	-0.47	0.11	0.00	-0.26	0.09	0.00
Married/Cohabitating	-0.37	1.52	0.81	-0.13	0.27	0.63	1.14	0.30	0.61	-0.20	0.48	0.68	-0.26	0.40	0.52
Less than High School Education	11.27	4.52	0.01	0.40	0.64	0.53	1.23	0.59	0.66	-2.03	1.72	0.24	-1.60	1.30	0.22
Currently Employed	0.39	1.40	0.78	-0.47	0.25	0.06	1.15	0.31	0.60	0.24	0.52	0.65	-1.47	0.51	0.00
Prior Mental Health	4.63	1.67	0.01	0.74	0.25	0.00	1.31	0.29	0.22	1.90	0.44	0.00	2.60	0.45	0.00
Direct Exposure	6.00	2.83	0.03	0.90	0.57	0.11	1.44	0.59	0.37	1.01	0.93	0.28	1.30	0.96	0.18
Media Exposure	5.65	0.64	0.00	0.28	0.11	0.01	1.89	0.26	0.00	0.80	0.23	0.00	0.05	0.20	0.80
Previous Community Trauma Exposure	1.77	0.77	0.02	0.29	0.14	0.04	1.06	0.16	0.71	0.82	0.26	0.00	0.45	0.24	0.06
Total population (block group)	0.00	0.00	0.68	0.00	0.00	0.04	1.00	0.00	0.56	0.00	0.00	0.32	0.00	0.00	0.42
Neighborhood Income (block group)	-0.00	0.00	0.48	-0.00	0.00	0.75	1.00	0.00	0.17	-0.00	0.00	0.07	-0.00	0.00	0.06
Count of Organizations															
<.5 miles ("Immediate Environment")	-2.55	1.50	0.09	0.36	0.25	0.16	0.79	0.25	0.46	-0.77	0.54	0.15	-0.72	0.42	0.09
.5 miles to < 1 mile ("Proximal Environment")	0.24	0.92	0.80	-0.22	0.14	0.11	1.06	0.15	0.69	0.21	0.25	0.41	0.39	0.26	0.13

1 mile to < 3 miles ("Near-Distal Environment")	0.16	0.23	0.48	0.02	0.04	0.50	1.00	0.04	0.95	0.00	0.06	0.99	-0.13	0.06	0.03
3 miles to < 5 miles ("Distal Environment")	0.06	0.19	0.75	-0.00	0.03	1.00	1.00	0.03	0.91	-0.05	0.06	0.34	0.05	0.05	0.36
Constant	34.14	3.47	0.00	5.80	0.72	0.00	0.09	0.07	0.00	15.94	1.58	0.00	6.73	1.68	0.00
Wald chi-square (*df*)							65.88 (20)***								
F (*df, df)*	6.53 (20, 846)***			6.23 (20, 658)***						7.98 (20, 630)***			4.43 (20, 630)***		
Pseudo Model R-square							0.1171								
Model R-square	0.2038			0.1744						0.1854			0.2078		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table 15. New York Metropolitan Area Voluntary Community Organizations

	Acute Stress (Nobs =886; Nclusters = 847)			Functional Impairment (Nobs =681; Nclusters = 659)			Probable PTSD (Nobs =692; Nclusters = 669)			Fears and Worries (Nobs =654; Nclusters = 631)			Psychological Distress (Nobs =654; Nclusters = 631)		
	b	*SE*	*p*	*b*	*SE*	*p*	OR	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.60	0.00	0.01	0.84	0.99	0.01	0.13	-0.01	0.02	0.62	-0.04	0.02	0.03
Black	-3.40	2.03	0.09	0.27	0.45	0.56	1.45	0.58	0.36	1.09	0.79	0.17	1.09	0.79	0.17
Hispanic	2.28	2.08	0.28	0.27	0.33	0.41	0.84	0.34	0.67	1.21	0.75	0.11	1.26	0.86	0.15
Other	11.14	5.71	0.05	0.37	0.74	0.62	3.95	2.48	0.03	-0.58	1.70	0.73	2.04	1.57	0.20
Mixed Race	9.83	4.31	0.02	0.69	0.77	0.37	2.09	1.30	0.24	0.49	1.35	0.72	0.75	1.27	0.56
Female	3.48	1.29	0.01	0.75	0.24	0.00	1.43	0.37	0.18	1.70	0.47	0.00	0.46	0.42	0.28
Household Income	-1.12	0.33	0.00	-0.34	0.06	0.00	0.91	0.07	0.17	-0.46	0.11	0.00	-0.26	0.09	0.00
Married/Cohabitating	-0.22	1.51	0.88	-0.13	0.27	0.62	1.14	0.30	0.61	-0.18	0.48	0.72	-0.18	0.40	0.65
Less than High School Education	11.09	4.55	0.02	0.45	0.65	0.49	1.14	0.57	0.79	-2.17	1.75	0.22	-1.71	1.35	0.21
Currently Employed	0.30	1.42	0.83	-0.47	0.25	0.06	1.13	0.31	0.66	0.24	0.52	0.65	-1.45	0.51	0.01
Prior Mental Health	4.59	1.67	0.01	0.74	0.26	0.00	1.32	0.29	0.20	1.92	0.45	0.00	2.59	0.46	0.00
Direct Exposure	6.24	2.88	0.03	0.89	0.57	0.12	1.51	0.61	0.31	1.03	0.94	0.28	1.37	0.97	0.16
Media Exposure	5.53	0.63	0.00	0.28	0.11	0.01	1.86	0.25	0.00	0.80	0.23	0.00	0.08	0.20	0.68
Previous Community Trauma Exposure	1.75	0.77	0.02	0.29	0.14	0.04	1.06	0.16	0.69	0.80	0.26	0.00	0.43	0.24	0.07
Total population (block group)	0.00	0.00	0.54	0.00	0.00	0.06	1.00	0.00	0.48	0.00	0.00	0.23	0.00	0.00	0.41
Neighborhood Income (block group)	-0.00	0.00	0.44	-0.00	0.00	0.82	1.00	0.00	0.15	-0.00	0.00	0.06	-0.00	0.00	0.06
Count of Organizations															
<.5 miles ("Immediate Environment")	-0.60	0.60	0.32	0.01	0.11	0.94	0.92	0.11	0.46	-0.14	0.23	0.56	0.12	0.19	0.51
.5 miles to < 1 mile ("Proximal Environment")	0.16	0.44	0.72	0.02	0.06	0.75	0.98	0.07	0.74	-0.14	0.13	0.26	-0.12	0.11	0.28

1 mile to < 3 miles ("Near-Distal Environment")	-0.05	0.10	0.61	-0.01	0.01	0.71	1.01	0.01	0.71	0.05	0.03	0.08	-0.00	0.03	0.88
3 miles to < 5 miles ("Distal Environment")	0.06	0.06	0.32	0.00	0.01	0.70	1.00	0.01	0.91	-0.03	0.02	0.09	0.01	0.01	0.73
Constant	34.45	3.42	0.00	5.79	0.72	0.00	0.10	0.07	0.00	15.90	1.54	0.00	6.70	1.73	0.00
Wald chi-square (*df*)							65.29 (20)***								
F (*df, df)*	6.42 (20, 846)***			6.11 (20, 658)***						7.85 (20, 630)***			4.53 (20, 630)***		
Pseudo Model R-square							0.1176								
Model R-square	0.2026			0.1700						0.1852			0.1996		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

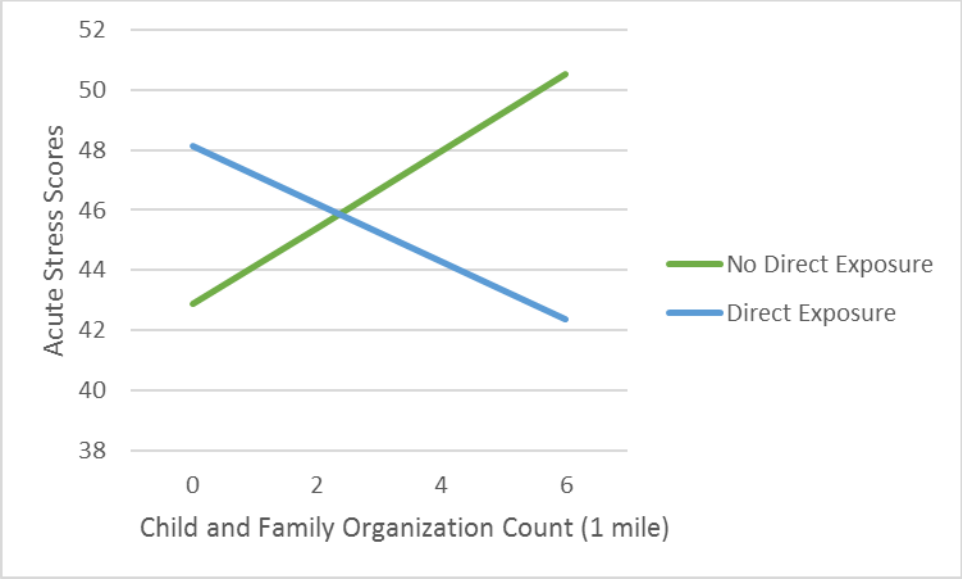

Figure 1. The relationship between child- and family-promoting organizations, direct exposure, and acute stress scores (Boston metropolitan area).

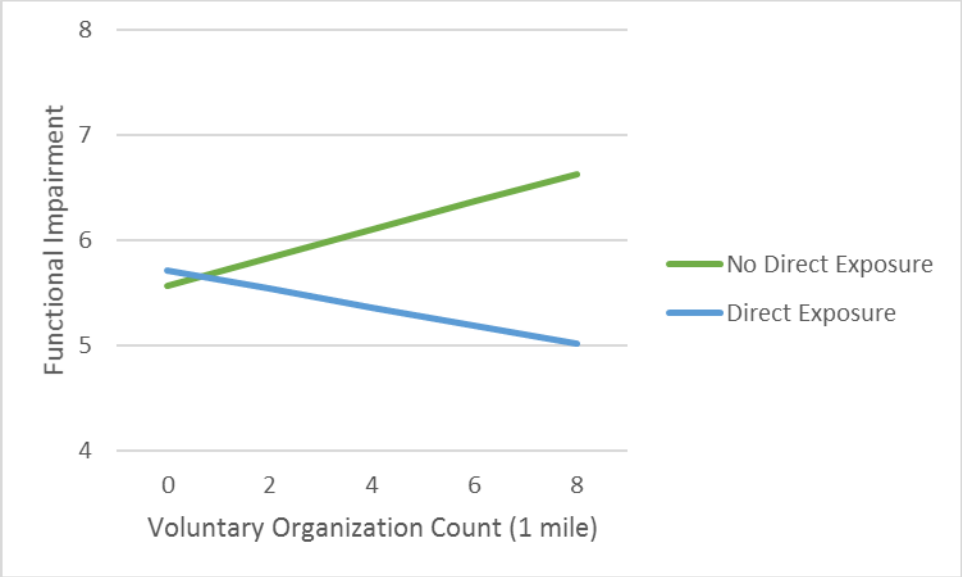

Figure 2. The relationship between voluntary community organizations, direct exposure, and functional difficulties (Boston metropolitan area).

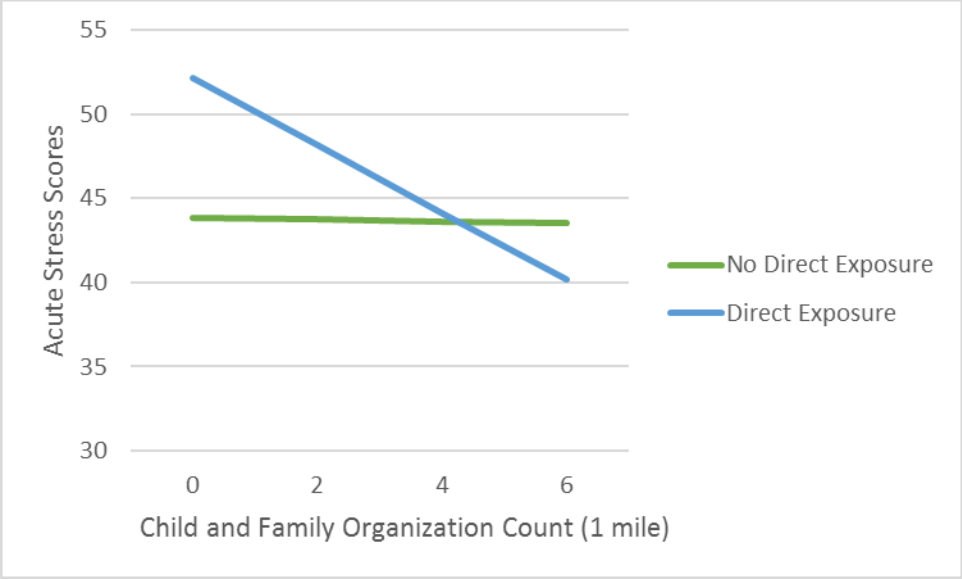

Figure 3. The relationship between child- and family-promoting organizations, direct exposure, and acute stress scores (New York metropolitan area).

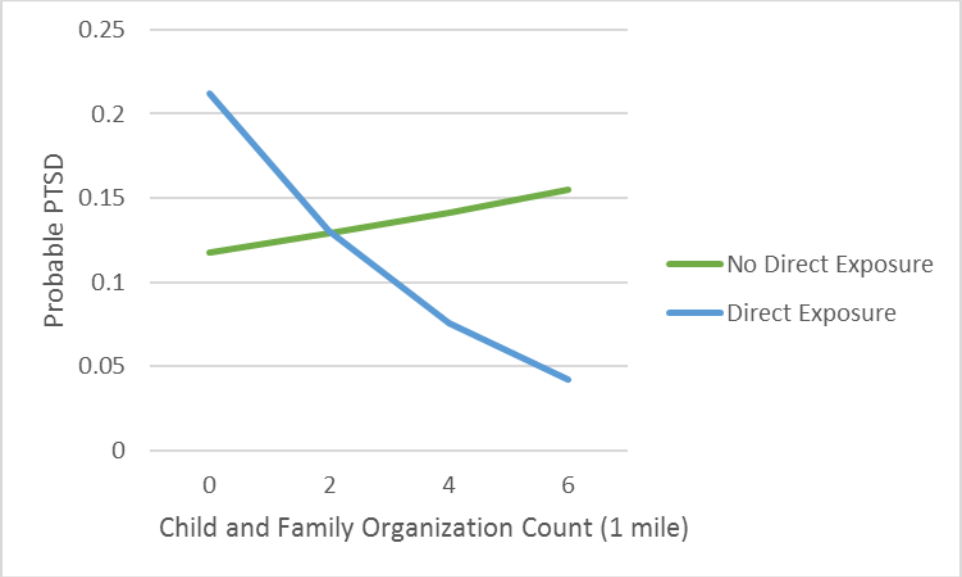

Figure 4. The relationship between child- and family-promoting organizations, direct exposure, and probable PTSD (New York metropolitan area).

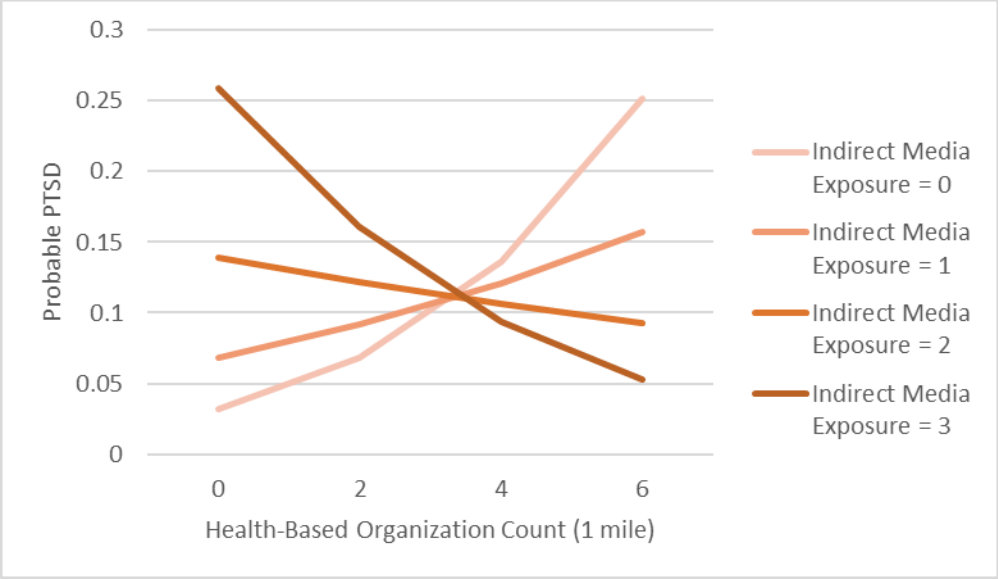

Figure 5. The relationship between health-based organizations, indirect media exposure, and probable PTSD (New York metropolitan area).

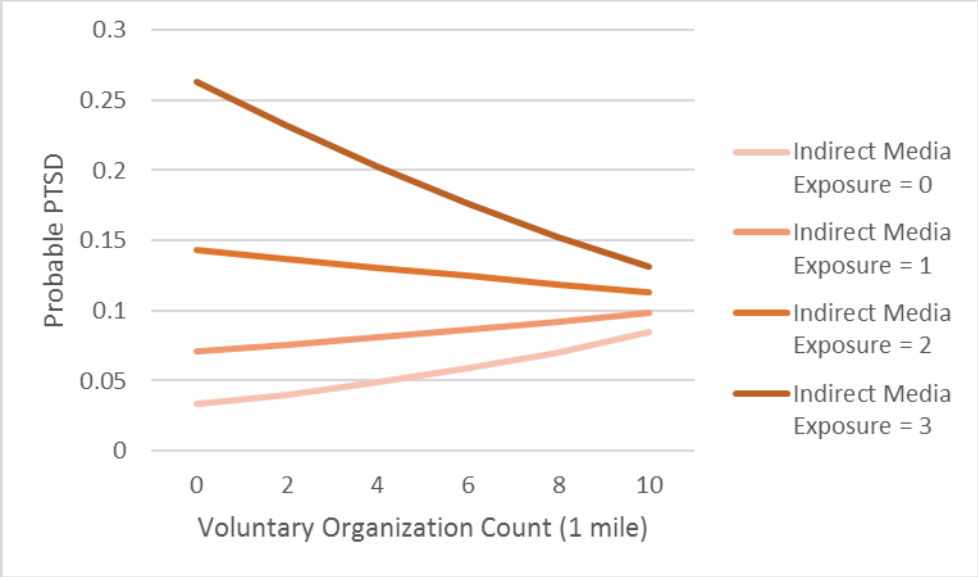

Figure 6. The relationship between voluntary community organizations, indirect media exposure, and probable PTSD (New York metropolitan area).

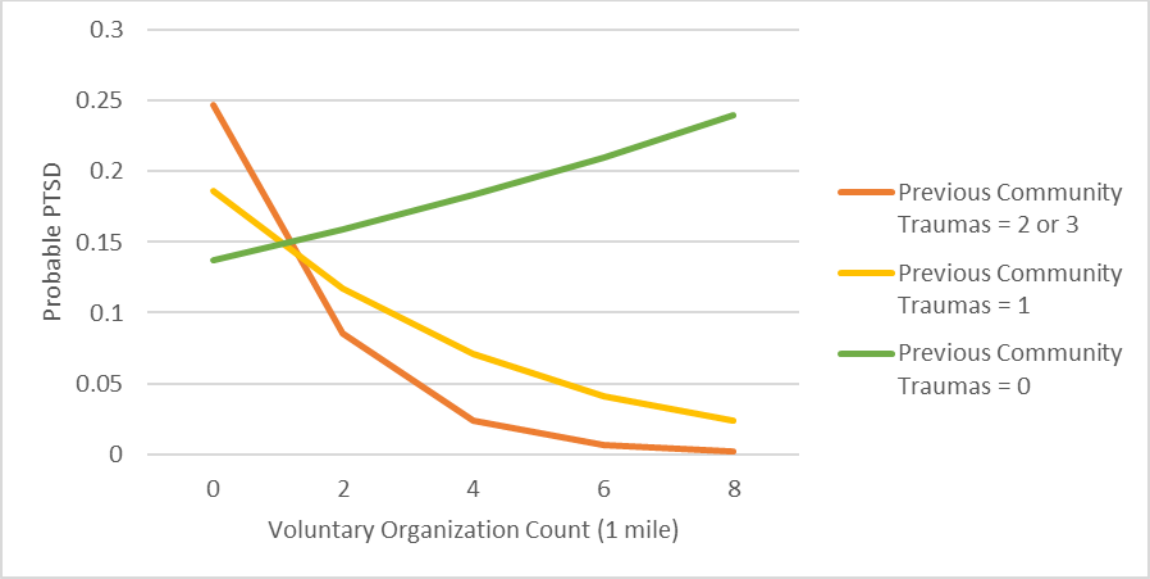

Figure 7. The relationship between voluntary community organizations, previous community trauma exposure, and probable PTSD (Boston metropolitan area).

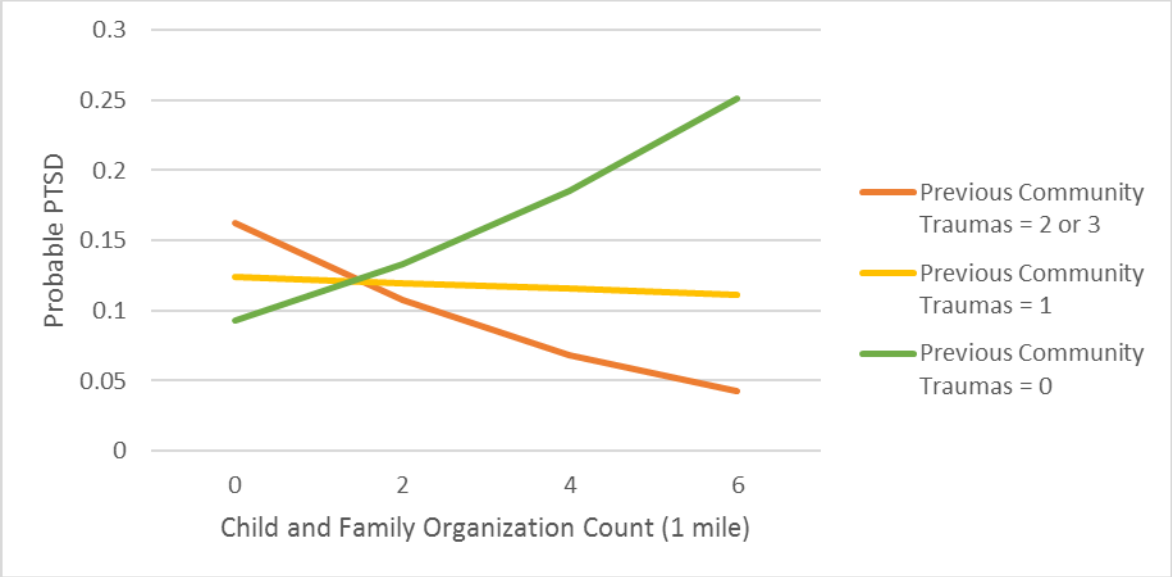

Figure 8. The relationship between child- and family-promoting organizations, previous community trauma exposure, and probable PTSD (New York metropolitan area).

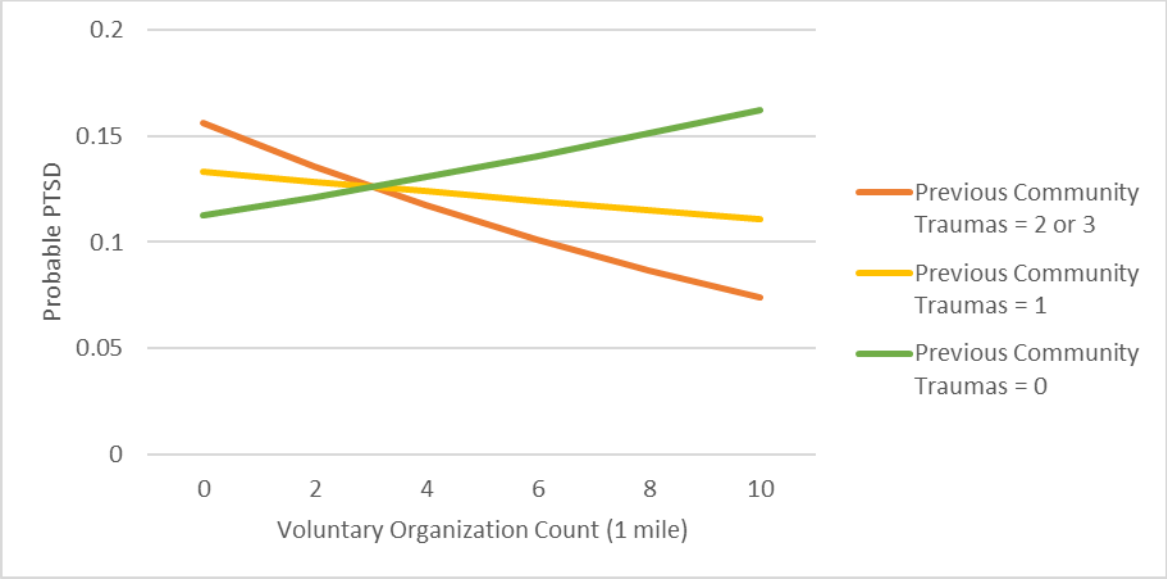

Figure 9. The relationship between voluntary community organizations, previous community trauma exposure, and probable PTSD (New York metropolitan area).

CHAPTER 3: How to Automate the Cleaning of Educational Organization Entries Returned Using Google Places Application Program Interface: A Case Example of "School" and "University" Place Types

Over the last few years, research within the social sciences has evolved to use big, open-source data sets. For example, "big data" from Facebook, Twitter, and Google have been used to examine different psychological or public health phenomena including positive/negative affect (Jones, Wojcik, Sweeting, & Silver, 2016; Wojcik, Hovasapian, Graham, Motyl, & Ditto, 2015), social support, perceived stress, and illness (Nabi, Prestin, & So, 2013), and public panic in response to Ebola (Towers et al., 2015). Less used are data gathered from Google Places Application Program Interface (API) place types. Google Places API can scrape the name, address, latitude, and longitude details of organizations or businesses using pre-determined place type ("bank", "bar", "church," etc.) filter options within Google. The scraped file includes a wealth of organization data – some valid and others pure noise. As organizations are often used to understand health (Buchmueller, Jacobson, & Wold, 2006) and behavior (e.g., crime; Slocum, Rengifo, Choi, & Herrmann, 2013), being able to delineate likely organizations from non-likely organizations might provide a fruitful new source of organization data for research.

Publicly accessible organization data typically come from tax-exempt non-profit government data archives (e.g., National Center for Charitable Statistics data or Guidestar; Lampkin & Boris, 2002) or business data archives (e.g., County Business Patterns; Wo, 2016). These data provide great resources for those interested in non-profit organization types (i.e., voluntary community organizations) or those interested in for-profit organizations at an aggregate, but are less beneficial to researchers interested in both non- and for-profit

organizations at the address or block-level. Google Places API, however, can search for both non- and for-profit organizations and the organization's exact address or building coordinates. Yet, to make the most out of this largely untapped data resource, a systematic method for cleaning the data is necessary.

Using text analyzing software (Meaning Extraction Helper; Boyd, 2016) along with data management and analytical software (STATA and Excel), this study describes an automated cleaning method to use with the organization data returned from Google Places API. The automated cleaning method employed in this study sought to identify educational institutions and therefore used organization data pooled with filter place types "school" and "university." The goal for the final file was to have a comprehensive listing of traditional schools and post-graduate educational institutions, keeping only one school per address and one college, university, or technical institute entry per higher education institution. The cleaned automated file was also compared to a file cleaned manually by a team of trained research assistants. This comparison was done to help answer the question "how similar is the automated approach to the manual approach?" Recommendations are provided on how this method should be used in future social science research, as well as the potential benefits or costs associated with an automated cleaning approach.

Method

Data

Educational organization entries in the Boston metropolitan area were gathered with Google Places API using two filter place types: "school" and "university". Blocks were identified and then, using the block centroid latitude or longitude coordinates, the nearest 20 educational

organization entries to the centroid point were grabbed from Google and saved. Only organization entries with unique Google Places API place IDs (textual identifiers generated by Google) were kept (A. Boessen, personal communication, February 19, 2015). Because our interest was in the organizations within 5 miles of selected coordinates, the over 12,500 organization data file was clipped using 5-mile buffer boundaries in ArcGIS (a spatial software program). The final organization dataset included 10,626 educational organization entries within the Boston metropolitan area. All organizations entries in the final dataset had a case number, name, address, latitude, longitude, reference, and place ID details (excluding the case number, all other organization information was automatically out-sheeted using Google Places API tool).

Two Types of Cleaning

Manual cleaning. Manual cleaning took place over a span of approximately 12 months. A team of research assistants was first trained using a small portion of the file in which research assistants were asked to flag repeat entries, entries that were not traditional schools or represented the wrong category (e.g., dance schools), entries of schools that had closed down, entries of schools with only a preschool or kindergarten, entries of schools housed at the same location or within a religious organization, and entries of schools that were specialized (e.g., vocational or technical schools or an all business college). Once comfortable with the task, the research assistants were assigned different sections of the file where they were responsible for flagging entries and including notes or links on the entries they reviewed. Research assistants were instructed that entries with high face validity were to be retained. High face validity entries included entries that by the name alone appeared to be a traditional school with grades

above kindergarten (e.g., John F. Kennedy High School). This was done to streamline the cleaning process. After the full file was reviewed once, all markings and notes were reviewed again by a second research assistant. If necessary, entries were augmented or altered by the second coder. Throughout the manual cleaning process, weekly meetings were held to discuss any questions or concerns research assistants had about the cleaning. The final manually-cleaned file included 2,967 entries (retaining only 30% of the original file).

Automated cleaning. The automated cleaning method used here relied on 3 different programs: Excel, STATA, and the Meaning Extraction Helper (MEH 1.4.14; Boyd, 2016).[11] The first step involved importing the data into Excel to fix any typos, writing out any abbreviations used in school names (e.g., "BU" instead of "Boston University"), and modifying repeat words that occasionally had extra symbols (e.g., "-" in "Jiu-Jitsu") or spaces (e.g., "day care"), such that they all were represented in the same way throughout the file. This preliminary step is necessary when using text analyzing software (MEH) or commands that tabulate or generate new variables from pre-existing string (non-numeric) variables. These edited names were used throughout the automated cleaning process.

In Excel, using a macro, each line of data was out-sheeted into separate text files. Each text file included only the name of a single organization. A folder with all the generated text files was then read into the MEH. The default stop list was loaded into the program, which included adverbs, pronouns, and commonly used adjectives. The loaded folder was then set to

[11] Other programs, such as SPSS, R, or Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Francis, 2007), may be used depending on preference.

be searched for “1-grams.” This tabulated the frequency of all single words across text files, excluding the default stop words. Looking at the identified high frequency words, a list of words that did not represent traditional schools or higher educational institutions was compiled.

In STATA, different variables of either school-specific words (e.g., “high school”) or non-school words (e.g., “karate”) identified from the MEH output were generated using the “regexm” command. The “regexm” command flags entries by searching within a specific variable (i.e., the organization name variable) to find word(s) and or phrases. School-specific words that were generated were used at the end of the cleaning process, while non-school words generated made it possible to iteratively trim the organization file. It was determined that for select words that were flagged, like “center,” these words might represent both non-school entries (like tutoring centers) and actual school entries. As such, the flagged “center” variable was examined to identify single or repeat words with center that represented cities, towns, or appeared to be a school (“centerville”, “center school”, etc.) and another variable was created to capture these exceptions. Flagged non-school words were dropped, except for the exceptions identified, and these data were again prepared for the MEH.

Just as before, macro-separated text files were placed in a folder, the folder was read into the MEH, and the default stop list was loaded. This time both “1-grams” and “2-grams” searches were conducted of folder files. Similar to a “1-grams” search, a “2-grams” search tabulated the frequency of two word combinations. Frequency listings were used to identify high-frequency words or two word combinations that should be dropped from the file (“tai-chi”, “goddard school”, etc.). In STATA, using the regexm command, these words were dropped, excluding any exceptions, and this file was saved.

For these data, the goal was to keep only one entry per college, university, or technical institute. Therefore, within STATA using the "parse" option and "duplicates tag", repeat universities and colleges were identified. Once more, with the regexm command, for identified colleges and universities, only one entry was kept for each higher education institution. This file was then merged with the aforementioned saved file after selecting on school-specific words. Additional entries were dropped (e.g., "homeschool") and repeat street addresses and latitude/longitude coordinates were removed. The final automated cleaned file included 3,440 entries (retaining only 32% of the original file). For reference, a sample list of dropped words are provided in the appendix (see Appendix Table A20).

Analysis

The percent agreement across both the automated and manual file was calculated upon merging the final files together. Differences were examined in terms of the number of closed entries, wrong category markings, specialized educational institutions, preschool and kindergarten only schools, and schools within religious organizations kept in the automated file and dropped in the manually coded file. As arbitrary differences in how repeat entries were handled could accentuate the differences noted across files, the percentage of repeat addresses and latitude/longitude coordinates was also computed on unmatched organization entries.

Results

From the original file with 10,626 organization entries, the percent agreement between the automated and manual files was 89.07%. That is, both files dropped the same 6,842 entries

as non-likely educational organizations and kept the same 2,623 entries as likely educational organizations - disagreeing only on 1,161 entries or about 11% of the original file.

Examination of the non-matched cases indicated that the automated coding method retained a total of 817 organization entries that the manual method dropped. Conversely, the automated coding method dropped a total of 344 organization entries that the manual method retained as valid school entries. For the 817 organization entries dropped by research assistants, reasons for dropping included the organization was closed or inactive since 2013 (*n* = 108), the organization was not an educational organization or was marked as a wrong category entry (*n* = 259), the organization was a specialized educational institution (e.g., vocational or technical school, school for students with disabilities, an alternative school, a dedicated art or music school, or a specialized university or college; *n* = 74), the organization only included a preschool and/or kindergarten (*n* = 121), the organization was at the same address or within a religious organization (*n* = 49), the organization was a repeat of another entry (*n* = 156), or the organization was deemed invalid for multiple reasons (*n* = 50).[12] This information can also be found in Table 1. For the 344 organization entries retained by research assistants but dropped by the automated coding method, research assistant notes indicated that many of these organizations were verified as schools using website or geographic coordinate information (i.e., latitude and longitude coordinates led to a school).

Focusing only on repeats, non-matched entries were merged into a single file. Based on

[12] For two or more reasons (e.g., a repeat and wrong category entry), these entries were dropped in the manual coding process.

address and latitude/longitude details, 64 entries were repeat addresses and 13 entries were repeat latitude/longitude coordinates, suggesting that different entries of the same organization were kept in the manual and automated coding files. These represent arbitrary differences in selection practices, rather than the organization or organization's location being treated as valid in one method and invalid in another. As this was also a concern for the higher educational institutions where only one entry was to be kept per college, university, or technical institute, these entries were similarly examined. In the automated coding method, 51 higher educational institutions were identified – 34 of which matched entries kept by the manual coding process along with 17 unmatched entries. Of these 17 unmatched entries, 8 entries were only found in the automated file and 9 entries had different addresses representing the same institutions. If these more minor differences are treated as matches, along with the arbitrary selection differences noted before, an additional 86 (64 + 13 + 9 = 86) entries become agreed upon. This raises the percent agreement from 89.1% to 89.9%. Finally, examining repeats by address and latitude/longitude coordinates in the manual file, it was found that there were 9 repeat addresses and 8 repeat latitude/longitude coordinates within the final manual file. In other words, there were 17 mistakes (errors) not caught by the manual coders in the cleaning or checking process.

Discussion

In the social sciences, there is a growing interest in how community organizations relate to a variety of outcomes, including neighborhood crime rates (Slocum et al., 2013), the disaster vulnerability of an area (Cutter, Boruff, & Shirley, 2003; Cutter, Emrich, Webb, & Morath, 2009), and psychological well-being of residents (Francis, Wood, Knuiman, & Giles-Corti, 2012).

Nonetheless, most data on community organizations are limited, often including only non-profit organizations or organizations at an aggregate (Lampkin & Boris, 2002; Wo, 2016). With Google Places API, filtering on pre-determined place types enables a large volume of location specific non-profit and for-profit organizations to be accessible to interested scholars. The one draw-back with these data are that they also include a substantial amount of noise or invalid data entries. In this study, an automated cleaning method to filter out the noise was described using data identified from "school" and "university" place types, and this method was compared against the more time-intensive manual coding approach.

Findings suggest that the automated coding method was an 89% match to the manual coding method. For the 11% of unmatched entries, entries retained by the automated coding method and dropped by the manual method were entries that did not match the desired organization criteria (i.e., were marked as being the wrong category, a repeat, a preschool and or kindergarten only school, closed or inactive since 2013, a specialized educational institution, and/or being housed within a religious organization). A handful of unmatched organizations appeared more different than they actually were, with 77 organizations sharing address or latitude or longitude details and another 9 representing the same university, college, or higher education institution. By disregarding these more minor differences, the automated method was a 90% match to the manual method. A few errors in coding repeats were found in the manual file, with duplicate addresses and geographic coordinates. However, these differences are almost negligible when considering the size of the original file (i.e., 17/10,626 = .0016 or 0.16% error) and to be expected when engaging in manual (human) cleaning methods.

Based on the high agreement and time costs associated with manual coding method, future research interested in using big data from Google Places API or other organization archives are encouraged to employ an automated cleaning method. Taking days or weeks, compared to the months and years, the time saved and enhanced accuracy in determining and eliminating repeat observations makes the automated cleaning method the preferred one. As showed here, using text analysis software in conjunction with code can help scholars efficiently identify noise within a dataset based on word frequency alone. Of course, depending of the specificity of the organizations desired, a mixed methods approach may also be of value. For example, in this study it was important to have organizations that were active before or until April 2013. As Google data can pull older organizations (i.e., schools once active but currently closed), having a person individually examine the organizations not dropped may improve the validity of the data. Nevertheless, reviewing 2,000-3,000 entries to remove any closed organization entries is easier than reviewing almost 11,000 organization entries.

Like most open-source data archives, Google Places API data has both pros and cons. The volume and geographic precision of the data serve as the biggest pros, while the cleaning process can be a daunting con. To make these data more accessible, this automated cleaning method has been described and found to be highly comparable to manual cleaning methods that rely on two coders for each entry. For researchers interested in organizations and their geography, the Google Places API remains a largely untapped data resource. Helped along by the automated cleaning method, these data can be used in future studies of neighborhood gentrification, community health care access, crime, and resident well-being.

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Table 1. Comparing Automated and Manual Coding Methods

	Number of Entries
Automated and Manual files	
Matched	9,465
Not Matched	1,161
Automated file	
Not Matched	817
Manual file	
Not Matched	344
Reasons Automated "Not Matched" Entries Dropped in Manual Coding Method	
Closed or Inactive	108
Wrong Category	259
Specialized Educational Institution	74
Preschool or Kindergarten Only	121
Same Address or Within Religious Organization	49
Repeat	156
Multiple Reasons for Dropping	50

EPILOGUE

For decades there has been an overemphasis on individual-level data over contextual data and subsequently on the predictive utility of individual-level effects over contextual-level effects. As stated by Schwarz (1994), there are three main fallacies that plague researchers from studying the impact of the physical or social environment on health outcomes: (1) the assumption that individual-level models are better specified when compared against ecological-level models, (2) that ecological correlations are really just proxies for individual-level correlations, and (3) that group-level variables are not responsible for the onset of diseases. However, when one is postulating that community trauma is associated with mental illness outcomes, contextual effects are most appropriate (MacIntyre & Ellaway, 2000). In fact, a number of studies have found that contextual effects exist independent of individual effects (e.g., proximity to green spaces and health outcomes; van den Berg, Maas, Verheij, & Groenewegen, 2010), making them more than just "statistical artifacts" that arise from mis-specified models, poor measurement, or residual confounding (MacIntyre & Ellaway, 2000).

Guided by an interest in contextual and spatial factors, this dissertation examined several issues, including a) the geographic distribution of psychological welfare post-disaster, b) the relationship between organization type, concentration, and proximity on resident mental health in the aftermath of a disaster, c) the moderating capacity of disaster-related exposure, and d) the utility of an automated cleaning method for organization data. In line with the National Research Council Report (2014) recommending the use of multiple data sources and geographic information to explore community and health issues, this dissertation retrieved information from the U.S. Census, Google Places API, and Guidestar to geographically

measure neighborhood demography and local community organization types. No other known study on individual mental or physical health has explored relationships between individuals and their spatial proximity and concentration to local community organizations after a disaster.

Findings from this dissertation suggest that, except for safety-based organizations (i.e., police and fire stations), having more service-providing local community organizations in the immediate and proximal environment is associated with better mental health outcomes after a man-made disaster. The fact that most associations between local community organizations and mental health were found only for residents in the Boston metropolitan area – and not the New York metropolitan area (comparison sample) – suggest that the findings are not due to residential selection issues. Instead, the presence of local organizations is associated with reductions in stress among residents *after* a disaster. For persons directly exposed to the Boston Marathon bombings or with previous community trauma exposure, having more child- and family-promoting, health-based, and/or voluntary community organizations within a one mile area was associated with significantly lower acute stress scores and a decreased risk of being classified as having "probable PTSD", compared to individuals with no recent or prior disaster exposure. Cluster analyses also indicated that residents living in close proximity to the bombings were more likely to report high acute stress, be classified as having "probable PTSD", and endorse high fears and worries post-bombings. These results collectively suggest that at-risk residents or areas post-disaster are those within close proximity to a disaster site or safety-based organizations and far from child- and family-promoting or health-based

organizations. At-risk areas may be especially likely to benefit from external relief aid after a disaster and results suggest that they should be targeted in a post-disaster environment.

The fact that statistically significant associations were noted with local community organization types and individual mental health outcomes, above and beyond individual-level or block-level effects (i.e., the urbanicity and wealth of a neighborhood), validates the study of local community organizations after a disaster. People and communities work together to promote health (Ellaway et al., 2009) and respond to disasters (Cutter, Boruff, & Shirley, 2003). Therefore, more attention should be directed at community-level factors when attempting to understand individual health and behavior. Employing a social-ecological framework, this dissertation offers important conceptual, policy, health, and methodological advancements to the study of organizations and community disasters.

First, conceptually, this dissertation forges an important connection between individuals and their nearby environment (micro-system) post-disaster. Though others have explored the impact of the nearby environment in a pre-disaster context (e.g., van den Berg et al., 2010), none have done so in a post-disaster context. Second, finding that nearby local community organizations inform resident mental health outcomes enables one to better identify individuals or communities most in-need of disaster relief aid. Developing a more strategic manner by which to disperse post-disaster goods and services, accounting for pre-existing service amenities, might lead to more cost-effective policies and research guided distribution of services in pre- and post-disaster environments. Third, findings can be used to inform intervention efforts aimed at improving health outcomes after a disaster (e.g., psychiatric first aid initiatives; Watson, Brymer, & Bonanno, 2011) by developing interventions

that foster community resilience and include local organization stakeholders. Fourth, by developing a method to clean organization data in an efficient manner, future research on local community organizations can be done in less time and with less resources.

Though these findings are informative, three main limitations of this dissertation are: (1) the absence of organization use data, (2) the lack of information on individual social supports, and (3) only having access to shifted participant residential (latitude/longitude) coordinates. Without organization use data, it is impossible to know which participants used which facilities or the quality of their experiences at such facilities. Only with these data can one assess if proximity to organizations post-disaster results in increased use for those in-need, or determine if the quality of an organization matters more than the quantity of organizations nearby. Social support is also consistently a strong predictor of positive mental health outcomes post-trauma (Ozer et al., 2003), and therefore measuring it would be desirable in future studies on this topic. Having social support measures would make it possible to test the degree to which individual social support is explained by community supports or resources. Future research would also benefit from using spatially precise residential and workplace latitude and longitude data for mapping and confounding purposes. As suggested by the descriptive cluster and outlier maps (see Chapter 1), high distress clusters were near, not right at, the bombing site. Having data on not only where the person lives but the locations he or she frequents (the office, “hang out” spots, etc.) may help explain this geographic discrepancy.

This dissertation provides a formidable first-step in understanding the relationship between local community organizations and individual mental health post-disaster. Replication

studies should be conducted to assess the reliability of these findings following disasters of a similar magnitude and nature. Such replication efforts should focus on man-made disasters events because unlike natural disasters, man-made disasters are more likely to leave a community's infrastructure intact, with local organizations incurring minimal to no damage. Additionally, more research on community-level factors, including local community organizations, and the role they play on resident mental and physical health should be conducted in both pre- and post-disaster environments. By better understanding how environments may help and hinder resident health, systematic efforts focused on improving the lives of residents and communities can be initiated. These efforts could include preemptively identifying neighborhoods limited in supportive organizations and either advocating for the building of such entities or creating specialized disaster plans for these at-risk neighborhoods. Plans might consider allocating a greater proportion of relief aid to the area post-disaster and/or forging agreements with adjacent local organization stakeholders to temporarily offer ambulatory services and support to flagged areas. "Place" factors are not the same across space and should thus be studied with the same interest and enthusiasm as individual factors. Doing so places the person and his or her well-being *in context*, which is appropriate when studying the psychological welfare of people after contextual traumas like man-made or natural disasters.

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APPENDIX

Table A1. Demographic Comparison of Boston and New York City

Variables	Boston, MA	New York, NY
Total Population	637,516	8,336,697
Median age (years)	31.01	35.6
Gender (female)	51.9%	52.4%
Race[a]		
White	53.5%	43.7%
Black or African American	26.1%	24.7%
American Indian and Alaska Native	0.4%	0.4%
Asian	9.1%	13.1%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%
Other Race	6.1%	15.0%
Households		
Median Household income (dollars)	51,642	50,895
Same Residence (after 1 year)	78.9%	89.0%
Region	Northeast	Northeast
Walkable City	Yes	Yes

Note. Table information from the U.S. Census American Community Survey (2012) 1 year estimates data (see DP02, DP03, and DP05 tables for additional housing, economic, or demographic details, respectively).

[a] Single race percentages are reported in the above table. Percentages for "two or more races" are 4.9% for Boston and 3.0% for New York.

Table A2.
Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in Boston Metropolitan Area Sample (Nobs = 776; Nclusters = 616)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.21	-0.06	0.05	0.24	-0.06	0.05	0.22
Black	-4.94	3.71	0.18	-3.12	3.23	0.33	-4.05	3.42	0.24
Hispanic	-3.71	3.65	0.31	-3.38	3.57	0.35	-3.84	3.63	0.29
Other	6.77	5.11	0.19	6.82	5.26	0.20	6.77	5.24	0.20
Mixed Race	9.85	7.00	0.16	9.36	7.16	0.19	9.55	7.18	0.18
Female	6.06	1.19	0.00	6.00	1.18	0.00	5.94	1.17	0.00
Household Income	-1.43	0.41	0.00	-1.44	0.41	0.00	-1.45	0.41	0.00
Married/Cohabitating	0.02	1.65	0.99	-0.06	1.67	0.97	-0.01	1.67	0.99
Less than High School Education	-0.96	3.18	0.76	-0.59	3.08	0.85	-0.68	3.12	0.83
Currently Employed	0.66	1.35	0.63	0.77	1.36	0.57	0.76	1.35	0.57
Prior Mental Health	2.51	1.45	0.08	2.54	1.45	0.08	2.53	1.45	0.08
Direct Exposure	5.25	1.70	0.00	4.33	1.74	0.01	4.72	1.67	0.01
Media Exposure	3.82	0.67	0.00	3.85	0.67	0.00	3.79	0.66	0.00
Previous Community Trauma Exposure	4.33	1.65	0.01	4.20	1.64	0.01	4.27	1.64	0.01
Total population (block group)	0.00	0.00	0.78	0.00	0.00	0.78	0.00	0.00	0.76
Neighborhood Income (block group)	0.00	0.00	0.13	0.00	0.00	0.20	0.00	0.00	0.17
Count of Organizations within a 1 mile area	1.28	0.82	0.12	0.64	0.97	0.51	0.71	0.67	0.29
Direct Exposure x Organization Count	-2.23	1.06	0.04	-0.99	1.25	0.43	-1.14	0.87	0.19
Constant	34.14	4.16	0.00	34.69	4.20	0.00	34.55	4.22	0.00
F (*df, df)*	6.76 (18, 615)***			6.72 (18, 615)***			6.71 (18, 615)***		
Model R-square	0.16			0.16			0.16		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A3. Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in New York Metropolitan Area Sample (Nobs = 886; Nclusters = 847)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.61	-0.02	0.04	0.63	-0.02	0.04	0.63
Black	-3.00	2.11	0.15	-3.18	2.01	0.11	-3.20	2.04	0.12
Hispanic	2.76	2.05	0.18	2.57	2.07	0.21	2.64	2.06	0.20
Other	11.14	5.66	0.05	11.09	5.64	0.05	11.11	5.69	0.05
Mixed Race	10.04	4.30	0.02	10.03	4.32	0.02	10.00	4.31	0.02
Female	3.26	1.27	0.01	3.40	1.28	0.01	3.32	1.27	0.01
Household Income	-1.12	0.33	0.00	-1.11	0.33	0.00	-1.11	0.33	0.00
Married/Cohabitating	-0.45	1.52	0.77	-0.34	1.51	0.82	-0.35	1.50	0.82
Less than High School Education	11.38	4.56	0.01	11.35	4.59	0.01	11.35	4.57	0.01
Currently Employed	0.30	1.39	0.83	0.43	1.40	0.76	0.41	1.40	0.77
Prior Mental Health	4.69	1.64	0.00	4.60	1.68	0.01	4.70	1.66	0.01
Direct Exposure	8.33	2.96	0.01	6.52	2.71	0.02	7.95	2.90	0.01
Media Exposure	5.57	0.63	0.00	5.60	0.63	0.00	5.60	0.63	0.00
Previous Community Trauma Exposure	1.82	0.78	0.02	1.78	0.77	0.02	1.81	0.77	0.02
Total population (block group)	0.00	0.00	0.60	0.00	0.00	0.62	0.00	0.00	0.57
Neighborhood Income (block group)	-0.00	0.00	0.33	-0.00	0.00	0.35	-0.00	0.00	0.34
Count of Organizations within a 1 mile area	-0.04	0.39	0.92	-0.06	0.54	0.91	0.03	0.18	0.88
Direct Exposure x Organization Count	-1.95	0.97	0.04	-0.63	2.33	0.79	-0.73	0.63	0.24
Constant	35.10	3.43	0.00	34.83	3.39	0.00	34.68	3.42	0.00
F (*df, df)*	7.34 (18, 846)***			7.42 (18, 846)***			7.30 (18, 846)***		
Model R-square	0.20			0.20			0.20		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A4. Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 521)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.01	0.01	0.29	-0.01	0.01	0.33	-0.01	0.01	0.25
Black	-0.58	0.73	0.43	-0.43	0.65	0.51	-0.50	0.68	0.47
Hispanic	0.01	0.61	0.99	0.07	0.58	0.91	-0.02	0.61	0.98
Other	-0.31	0.45	0.49	-0.33	0.46	0.48	-0.32	0.46	0.48
Mixed Race	0.05	0.51	0.92	-0.06	0.55	0.92	0.11	0.50	0.83
Female	-0.09	0.20	0.65	-0.09	0.20	0.64	-0.12	0.20	0.55
Household Income	-0.17	0.06	0.01	-0.17	0.06	0.00	-0.18	0.06	0.00
Married/Cohabitating	-0.34	0.26	0.19	-0.33	0.27	0.22	-0.34	0.26	0.20
Less than High School Education	0.31	0.71	0.67	0.37	0.70	0.60	0.33	0.69	0.63
Currently Employed	-0.59	0.22	0.01	-0.55	0.22	0.01	-0.59	0.22	0.01
Prior Mental Health	1.15	0.21	0.00	1.14	0.21	0.00	1.15	0.21	0.00
Direct Exposure	0.10	0.24	0.67	0.02	0.24	0.92	0.14	0.24	0.57
Media Exposure	0.18	0.10	0.07	0.17	0.10	0.07	0.17	0.09	0.07
Previous Community Trauma Exposure	0.38	0.21	0.06	0.34	0.21	0.10	0.38	0.20	0.06
Total population (block group)	0.00	0.00	0.30	0.00	0.00	0.24	0.00	0.00	0.29
Neighborhood Income (block group)	0.00	0.00	0.99	0.00	0.00	0.98	0.00	0.00	0.96
Count of Organizations within a 1 mile area	0.17	0.11	0.11	0.20	0.12	0.10	0.13	0.09	0.15
Direct Exposure x Organization Count	-0.24	0.14	0.10	-0.15	0.19	0.42	-0.22	0.10	0.04
Constant	6.26	0.70	0.00	6.18	0.72	0.00	6.33	0.71	0.00
F (*df, df)*	4.20 (18, 520)***			4.18 (18, 520)***			4.10 (18, 520)***		
Model R-square	0.13			0.13			0.13		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A5. Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in New York Metropolitan Area Sample (Nobs = 681; Nclusters = 659)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	p	*b*	*SE*	p	*b*	*SE*	p
Age (in years)	0.00	0.01	0.84	0.00	0.01	0.85	0.00	0.01	0.84
Black	0.28	0.47	0.55	0.28	0.45	0.53	0.27	0.46	0.56
Hispanic	0.30	0.32	0.36	0.31	0.32	0.34	0.28	0.32	0.38
Other	0.40	0.73	0.58	0.40	0.73	0.59	0.38	0.73	0.61
Mixed Race	0.70	0.77	0.37	0.70	0.78	0.37	0.69	0.77	0.37
Female	0.75	0.24	0.00	0.74	0.24	0.00	0.76	0.24	0.00
Household Income	-0.34	0.06	0.00	-0.34	0.06	0.00	-0.34	0.06	0.00
Married/Cohabitating	-0.15	0.27	0.59	-0.15	0.27	0.58	-0.14	0.27	0.61
Less than High School Education	0.44	0.64	0.49	0.44	0.64	0.49	0.46	0.64	0.47
Currently Employed	-0.46	0.25	0.07	-0.46	0.25	0.06	-0.46	0.25	0.07
Prior Mental Health	0.75	0.26	0.00	0.76	0.26	0.00	0.73	0.26	0.01
Direct Exposure	0.86	0.63	0.17	0.98	0.63	0.12	0.78	0.64	0.22
Media Exposure	0.28	0.11	0.01	0.28	0.11	0.01	0.28	0.11	0.01
Previous Community Trauma Exposure	0.29	0.14	0.04	0.29	0.14	0.04	0.28	0.14	0.05
Total population (block group)	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.06
Neighborhood Income (block group)	-0.00	0.00	0.76	-0.00	0.00	0.75	-0.00	0.00	0.79
Count of Organizations within a 1 mile area	0.00	0.06	0.98	0.00	0.09	0.98	0.01	0.03	0.83
Direct Exposure x Organization Count	0.03	0.20	0.90	-0.12	0.31	0.71	0.04	0.11	0.73
Constant	5.84	0.70	0.00	5.85	0.70	0.00	5.82	0.70	0.00
F (*df, df)*	6.79 (18, 658)***			6.70 (18, 658)***			6.83 (18, 658)***		
Model R-square	0.17			0.17			0.17		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A6. Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 522)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	1.00	0.01	0.79	1.00	0.01	0.74	1.00	0.01	0.83
Black	3.59	2.19	0.04	3.18	1.86	0.05	2.68	1.57	0.09
Hispanic	0.60	0.65	0.64	0.63	0.68	0.67	0.60	0.66	0.64
Other	1.44	1.30	0.69	1.50	1.39	0.66	1.32	1.21	0.76
Mixed Race	1.96	1.55	0.39	1.71	1.41	0.52	1.78	1.47	0.48
Female	1.60	0.40	0.06	1.63	0.41	0.05	1.61	0.40	0.05
Household Income	0.90	0.06	0.12	0.90	0.06	0.15	0.90	0.06	0.13
Married/Cohabitating	0.94	0.27	0.84	0.97	0.28	0.90	0.99	0.29	0.98
Less than High School Education	0.32	0.32	0.25	0.32	0.34	0.28	0.34	0.34	0.29
Currently Employed	0.78	0.21	0.34	0.79	0.21	0.36	0.79	0.21	0.37
Prior Mental Health	1.32	0.25	0.14	1.34	0.25	0.11	1.31	0.24	0.14
Direct Exposure	1.06	0.31	0.85	1.00	0.29	0.99	1.15	0.34	0.63
Media Exposure	2.24	0.36	0.00	2.21	0.37	0.00	2.19	0.35	0.00
Previous Community Trauma Exposure	1.05	0.21	0.82	1.04	0.22	0.83	1.01	0.21	0.96
Total population (block group)	1.00	0.00	0.43	1.00	0.00	0.47	1.00	0.00	0.48
Neighborhood Income (block group)	1.00	0.00	0.93	1.00	0.00	0.90	1.00	0.00	0.89
Count of Organizations within a 1 mile area	0.85	0.12	0.25	0.87	0.14	0.39	1.04	0.09	0.69
Direct Exposure x Organization Count	1.09	0.19	0.60	1.17	0.22	0.39	0.94	0.12	0.62
Constant	0.04	0.03	0.00	0.03	0.03	0.00	0.03	0.02	0.00
Wald chi-square (*df)*	52.65 (18)***			49.15 (18)***			49.48 (18)***		
Pseudo Model R-square	0.10			0.10			0.09		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A7. Direct Boston Metropolitan Bombing Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in New York Metropolitan Area Sample (Nobs = 692; Nclusters = 669)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	0.99	0.01	0.10	0.99	0.01	0.12	0.99	0.01	0.12
Black	1.29	0.56	0.56	1.38	0.55	0.42	1.45	0.59	0.36
Hispanic	0.81	0.32	0.60	0.85	0.33	0.67	0.89	0.34	0.76
Other	3.64	2.23	0.04	3.61	2.22	0.04	3.96	2.48	0.03
Mixed Race	2.07	1.28	0.24	2.12	1.30	0.22	2.15	1.33	0.22
Female	1.39	0.37	0.21	1.42	0.37	0.19	1.40	0.37	0.21
Household Income	0.90	0.07	0.18	0.91	0.07	0.18	0.90	0.07	0.16
Married/Cohabitating	1.14	0.30	0.63	1.14	0.30	0.61	1.12	0.29	0.66
Less than High School Education	1.18	0.57	0.73	1.23	0.59	0.67	1.15	0.57	0.77
Currently Employed	1.11	0.31	0.71	1.14	0.32	0.63	1.13	0.31	0.67
Prior Mental Health	1.36	0.29	0.15	1.30	0.28	0.22	1.35	0.29	0.17
Direct Exposure	2.20	0.95	0.07	1.82	0.77	0.16	2.05	0.89	0.10
Media Exposure	1.90	0.26	0.00	1.89	0.26	0.00	1.88	0.26	0.00
Previous Community Trauma Exposure	1.09	0.16	0.57	1.07	0.16	0.64	1.08	0.16	0.61
Total population (block group)	1.00	0.00	0.44	1.00	0.00	0.46	1.00	0.00	0.47
Neighborhood Income (block group)	1.00	0.00	0.20	1.00	0.00	0.13	1.00	0.00	0.12
Count of Organizations within a 1 mile area	1.06	0.07	0.37	1.02	0.10	0.81	0.99	0.03	0.75
Direct Exposure x Organization Count	0.68	0.11	0.01	0.76	0.20	0.30	0.89	0.06	0.11
Constant	0.09	0.06	0.00	0.10	0.07	0.00	0.10	0.08	0.00
Wald chi-square (*df)*	65.92 (18)***			65.47 (18)***			63.70 (18)***		
Pseudo Model R-square	0.12			0.12			0.12		

***$p<.001$.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A8. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in Boston Metropolitan Area Sample (Nobs = 776; Nclusters = 616)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.05	0.05	0.27	-0.06	0.05	0.26	-0.05	0.05	0.26
Black	-3.54	3.46	0.31	-2.90	3.21	0.37	-3.10	3.31	0.35
Hispanic	-3.48	3.57	0.33	-3.45	3.55	0.33	-3.42	3.59	0.34
Other	7.22	5.23	0.17	7.16	5.33	0.18	7.06	5.32	0.19
Mixed Race	9.39	7.14	0.19	9.19	7.21	0.20	9.20	7.21	0.20
Female	6.14	1.18	0.00	6.07	1.20	0.00	6.09	1.19	0.00
Household Income	-1.41	0.41	0.00	-1.42	0.41	0.00	-1.42	0.41	0.00
Married/Cohabitating	-0.13	1.65	0.94	-0.08	1.68	0.96	-0.05	1.68	0.98
Less than High School Education	-0.89	3.14	0.78	-0.65	3.09	0.83	-0.62	3.08	0.84
Currently Employed	0.80	1.34	0.55	0.83	1.35	0.54	0.81	1.35	0.55
Prior Mental Health	2.62	1.45	0.07	2.60	1.45	0.07	2.59	1.45	0.07
Direct Exposure	3.71	1.68	0.03	3.75	1.71	0.03	3.74	1.67	0.03
Media Exposure	4.17	0.73	0.00	3.95	0.70	0.00	3.83	0.70	0.00
Previous Community Trauma Exposure	4.37	1.66	0.01	4.30	1.65	0.01	4.31	1.65	0.01
Total population (block group)	0.00	0.00	0.75	0.00	0.00	0.77	0.00	0.00	0.77
Neighborhood Income (block group)	0.00	0.00	0.21	0.00	0.00	0.22	0.00	0.00	0.23
Count of Organizations within a 1 mile area	1.38	0.93	0.14	0.69	1.07	0.52	0.20	0.66	0.76
Indirect Exposure x Organization Count	-0.52	0.41	0.21	-0.24	0.56	0.67	-0.02	0.35	0.95
Constant	33.84	4.17	0.00	34.53	4.12	0.00	34.73	4.16	0.00
F (*df, df)*	6.70 (18, 615)***			6.72 (18, 615)***			6.70 (18, 615)***		
Model R-square	0.16			0.16			0.16		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A9. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in New York Metropolitan Area Sample (Nobs = 886; Nclusters = 847)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.65	-0.02	0.04	0.61	-0.02	0.04	0.63
Black	-2.81	2.11	0.18	-2.97	2.00	0.14	-3.08	2.04	0.13
Hispanic	2.79	2.04	0.17	2.58	2.08	0.22	2.62	2.06	0.20
Other	11.25	5.65	0.05	11.40	5.65	0.04	11.19	5.69	0.05
Mixed Race	10.19	4.30	0.02	9.95	4.29	0.02	10.08	4.31	0.02
Female	3.43	1.28	0.01	3.44	1.28	0.01	3.42	1.28	0.01
Household Income	-1.11	0.33	0.00	-1.09	0.33	0.00	-1.12	0.33	0.00
Married/Cohabitating	-0.39	1.53	0.80	-0.26	1.51	0.86	-0.29	1.50	0.85
Less than High School Education	11.41	4.57	0.01	11.47	4.60	0.01	11.26	4.57	0.01
Currently Employed	0.44	1.41	0.76	0.38	1.40	0.79	0.41	1.40	0.77
Prior Mental Health	4.58	1.66	0.01	4.54	1.65	0.01	4.56	1.66	0.01
Direct Exposure	6.18	2.86	0.03	6.30	2.85	0.03	6.18	2.84	0.03
Media Exposure	5.60	0.71	0.00	6.07	0.69	0.00	5.84	0.71	0.00
Previous Community Trauma Exposure	1.76	0.78	0.02	1.76	0.78	0.02	1.76	0.77	0.02
Total population (block group)	0.00	0.00	0.66	0.00	0.00	0.60	0.00	0.00	0.62
Neighborhood Income (block group)	-0.00	0.00	0.30	-0.00	0.00	0.32	-0.00	0.00	0.34
Count of Organizations within a 1 mile area	-0.19	0.58	0.74	1.11	1.19	0.35	0.12	0.31	0.69
Indirect Exposure x Organization Count	0.00	0.32	0.99	-0.77	0.62	0.22	-0.10	0.19	0.60
Constant	35.12	3.50	0.00	34.08	3.43	0.00	34.51	3.45	0.00
F (*df, df)*	7.13 (18, 846)***			7.43 (18, 846)***			7.44 (18, 846)***		
Model R-square	0.20			0.20			0.20		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A10. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 521)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.01	0.01	0.33	-0.01	0.01	0.36	-0.01	0.01	0.33
Black	-0.39	0.72	0.58	-0.37	0.66	0.58	-0.31	0.67	0.64
Hispanic	0.06	0.60	0.91	0.09	0.59	0.89	0.09	0.61	0.89
Other	-0.27	0.46	0.56	-0.31	0.47	0.51	-0.28	0.47	0.55
Mixed Race	-0.03	0.55	0.96	-0.04	0.58	0.95	0.00	0.57	1.00
Female	-0.10	0.20	0.63	-0.08	0.20	0.69	-0.10	0.20	0.63
Household Income	-0.17	0.06	0.01	-0.17	0.06	0.01	-0.17	0.06	0.01
Married/Cohabitating	-0.35	0.26	0.18	-0.32	0.27	0.23	-0.34	0.27	0.21
Less than High School Education	0.31	0.71	0.66	0.34	0.70	0.63	0.29	0.70	0.68
Currently Employed	-0.57	0.22	0.01	-0.56	0.22	0.01	-0.59	0.22	0.01
Prior Mental Health	1.15	0.21	0.00	1.15	0.22	0.00	1.15	0.22	0.00
Direct Exposure	-0.05	0.23	0.84	-0.07	0.23	0.76	-0.03	0.23	0.88
Media Exposure	0.17	0.10	0.09	0.14	0.10	0.19	0.14	0.10	0.18
Previous Community Trauma Exposure	0.38	0.21	0.07	0.35	0.21	0.09	0.38	0.21	0.07
Total population (block group)	0.00	0.00	0.30	0.00	0.00	0.25	0.00	0.00	0.31
Neighborhood Income (block group)	-0.00	0.00	0.81	-0.00	0.00	0.87	-0.00	0.00	0.77
Count of Organizations within a 1 mile area	0.05	0.16	0.75	-0.02	0.18	0.90	-0.10	0.10	0.33
Indirect Exposure x Organization Count	0.00	0.06	0.99	0.06	0.09	0.49	0.06	0.05	0.26
Constant	6.33	0.70	0.00	6.30	0.73	0.00	6.46	0.73	0.00
F (*df, df)*	3.87 (18, 520)***			4.01 (18, 520)***			3.94 (18, 520)***		
Model R-square	0.13			0.13			0.13		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A11. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in New York Metropolitan Area Sample (Nobs = 681; Nclusters = 659)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	0.00	0.01	0.83	0.00	0.01	0.94	0.00	0.01	0.87
Black	0.29	0.46	0.54	0.33	0.45	0.46	0.31	0.45	0.49
Hispanic	0.31	0.32	0.34	0.33	0.32	0.31	0.34	0.32	0.30
Other	0.39	0.74	0.60	0.46	0.73	0.53	0.39	0.75	0.61
Mixed Race	0.68	0.77	0.38	0.64	0.77	0.41	0.63	0.77	0.42
Female	0.75	0.24	0.00	0.75	0.24	0.00	0.75	0.24	0.00
Household Income	-0.34	0.06	0.00	-0.33	0.06	0.00	-0.34	0.06	0.00
Married/Cohabitating	-0.14	0.27	0.62	-0.12	0.27	0.67	-0.10	0.27	0.73
Less than High School Education	0.44	0.64	0.49	0.45	0.64	0.48	0.45	0.64	0.48
Currently Employed	-0.46	0.25	0.07	-0.48	0.25	0.06	-0.48	0.25	0.06
Prior Mental Health	0.75	0.26	0.00	0.75	0.25	0.00	0.74	0.26	0.00
Direct Exposure	0.89	0.57	0.12	0.94	0.57	0.10	0.93	0.57	0.10
Media Exposure	0.31	0.13	0.02	0.38	0.13	0.00	0.40	0.13	0.00
Previous Community Trauma Exposure	0.28	0.14	0.05	0.28	0.14	0.05	0.28	0.14	0.05
Total population (block group)	0.00	0.00	0.05	0.00	0.00	0.04	0.00	0.00	0.04
Neighborhood Income (block group)	-0.00	0.00	0.76	-0.00	0.00	0.78	-0.00	0.00	0.85
Count of Organizations within a 1 mile area	0.04	0.09	0.63	0.24	0.21	0.25	0.08	0.06	0.14
Indirect Exposure x Organization Count	-0.02	0.04	0.59	-0.16	0.10	0.12	-0.05	0.03	0.11
Constant	5.77	0.71	0.00	5.69	0.70	0.00	5.59	0.71	0.00
F (*df, df)*	6.77 (18, 658)***			6.70 (18, 658)***			6.71 (18, 658)***		
Model R-square	0.17			0.17			0.17		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A12. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 522)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	1.00	0.01	0.85	1.00	0.01	0.80	1.00	0.01	0.75
Black	3.49	2.11	0.04	2.91	1.68	0.06	3.00	1.81	0.07
Hispanic	0.60	0.65	0.64	0.61	0.67	0.65	0.64	0.70	0.68
Other	1.40	1.24	0.71	1.38	1.25	0.72	1.32	1.19	0.76
Mixed Race	1.93	1.53	0.41	1.80	1.42	0.46	1.73	1.45	0.51
Female	1.59	0.40	0.06	1.61	0.40	0.06	1.63	0.40	0.05
Household Income	0.90	0.06	0.12	0.90	0.06	0.13	0.90	0.06	0.12
Married/Cohabitating	0.95	0.28	0.87	0.97	0.28	0.91	1.00	0.29	0.99
Less than High School Education	0.32	0.32	0.26	0.33	0.34	0.28	0.32	0.33	0.27
Currently Employed	0.77	0.20	0.32	0.78	0.21	0.35	0.78	0.21	0.36
Prior Mental Health	1.31	0.24	0.15	1.32	0.24	0.13	1.31	0.24	0.15
Direct Exposure	1.12	0.31	0.68	1.10	0.31	0.74	1.09	0.31	0.75
Media Exposure	2.08	0.36	0.00	2.18	0.36	0.00	2.01	0.34	0.00
Previous Community Trauma Exposure	1.04	0.21	0.86	1.03	0.21	0.89	1.01	0.21	0.95
Total population (block group)	1.00	0.00	0.40	1.00	0.00	0.45	1.00	0.00	0.44
Neighborhood Income (block group)	1.00	0.00	0.94	1.00	0.00	0.99	1.00	0.00	1.00
Count of Organizations within a 1 mile area	0.59	0.24	0.19	0.89	0.37	0.77	0.70	0.22	0.26
Indirect Exposure x Organization Count	1.16	0.16	0.28	1.03	0.16	0.86	1.14	0.13	0.23
Constant	0.05	0.04	0.00	0.03	0.03	0.00	0.04	0.03	0.00
Wald chi-square (*df)*	52.30 (18)***			49.43 (18)***			50.24 (18)***		
Pseudo Model R-square	0.10			0.09			0.10		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A13. Indirect Media Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in New York Metropolitan Area Sample (Nobs = 692; Nclusters = 669)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	0.99	0.01	0.13	0.99	0.01	0.09	0.99	0.01	0.11
Black	1.38	0.58	0.44	1.54	0.62	0.28	1.56	0.62	0.27
Hispanic	0.83	0.32	0.62	0.89	0.34	0.76	0.94	0.36	0.88
Other	3.53	2.19	0.04	4.12	2.63	0.03	3.85	2.56	0.04
Mixed Race	2.03	1.23	0.25	2.04	1.24	0.24	2.02	1.24	0.25
Female	1.43	0.38	0.18	1.44	0.38	0.17	1.40	0.37	0.21
Household Income	0.91	0.07	0.19	0.91	0.07	0.21	0.90	0.07	0.16
Married/Cohabitating	1.20	0.32	0.49	1.22	0.32	0.46	1.21	0.32	0.47
Less than High School Education	1.23	0.59	0.67	1.23	0.61	0.68	1.16	0.58	0.77
Currently Employed	1.17	0.32	0.56	1.14	0.31	0.64	1.12	0.31	0.69
Prior Mental Health	1.29	0.28	0.24	1.28	0.27	0.25	1.31	0.28	0.21
Direct Exposure	1.44	0.58	0.36	1.64	0.66	0.21	1.60	0.64	0.24
Media Exposure	2.08	0.34	0.00	2.29	0.36	0.00	2.27	0.36	0.00
Previous Community Trauma Exposure	1.06	0.15	0.68	1.06	0.16	0.68	1.06	0.16	0.68
Total population (block group)	1.00	0.00	0.46	1.00	0.00	0.39	1.00	0.00	0.42
Neighborhood Income (block group)	1.00	0.00	0.16	1.00	0.00	0.11	1.00	0.00	0.13
Count of Organizations within a 1 mile area	1.16	0.13	0.20	1.50	0.19	0.00	1.11	0.07	0.11
Indirect Exposure x Organization Count	0.94	0.05	0.26	0.78	0.06	0.00	0.94	0.03	0.03
Constant	0.07	0.05	0.00	0.06	0.05	0.00	0.07	0.05	0.00
Wald chi-square (*df)*	62.56 (18)***			63.77 (18)***			69.74 (18)***		
Pseudo Model R-square	0.12			0.13			0.13		

***p<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A14. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in Boston Metropolitan Area Sample (Nobs = 776; Nclusters = 616)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.06	0.05	0.25	-0.06	0.05	0.26	-0.06	0.05	0.23
Black	-3.28	3.45	0.31	-2.16	3.23	0.50	-3.02	3.28	0.36
Hispanic	-3.36	3.58	0.33	-3.28	3.54	0.35	-3.09	3.60	0.39
Other	7.29	5.30	0.17	7.53	5.29	0.16	7.53	5.38	0.16
Mixed Race	9.30	7.11	0.19	9.47	7.17	0.19	9.32	7.19	0.20
Female	6.05	1.18	0.00	6.16	1.20	0.00	6.06	1.18	0.00
Household Income	-1.42	0.41	0.00	-1.44	0.40	0.00	-1.44	0.40	0.00
Married/Cohabitating	-0.02	1.65	0.94	0.00	1.66	1.00	0.02	1.65	0.99
Less than High School Education	-0.64	3.06	0.78	-0.36	3.01	0.91	-0.53	3.03	0.86
Currently Employed	0.77	1.35	0.55	0.84	1.35	0.53	0.76	1.34	0.57
Prior Mental Health	2.56	1.45	0.07	2.61	1.45	0.07	2.54	1.44	0.08
Direct Exposure	3.71	1.68	0.03	3.54	1.71	0.04	3.69	1.67	0.03
Media Exposure	3.84	0.67	0.00	3.82	0.66	0.00	3.81	0.66	0.00
Previous Community Trauma Exposure	4.75	1.84	0.01	5.14	1.72	0.00	5.36	1.71	0.00
Total population (block group)	0.00	0.00	0.75	0.00	0.00	0.74	0.00	0.00	0.79
Neighborhood Income (block group)	0.00	0.00	0.21	0.00	0.00	0.23	0.00	0.00	0.24
Count of Organizations within a 1 mile area	0.41	0.68	0.14	0.67	0.83	0.42	0.49	0.52	0.35
Previous Trauma Exposure x Organization Count	-0.49	0.81	0.21	-1.00	0.77	0.19	-0.90	0.57	0.12
Constant	34.74	4.12	0.00	34.43	4.18	0.00	34.91	4.21	0.00
F (*df, df)*	6.71 (18, 615)***			7.04 (18, 615)***			6.96 (18, 615)***		
Model R-square	0.16			0.16			0.16		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A15. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Acute Stress Scores in New York Metropolitan Area Sample (Nobs = 886; Nclusters = 847)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.02	0.04	0.63	-0.02	0.04	0.66	-0.02	0.04	0.64
Black	-2.85	2.10	0.18	-3.10	2.01	0.12	-3.14	2.04	0.13
Hispanic	2.78	2.05	0.18	2.57	2.07	0.22	2.60	2.07	0.21
Other	11.19	5.63	0.05	11.11	5.67	0.05	11.19	5.67	0.05
Mixed Race	10.51	4.32	0.02	10.17	4.33	0.02	10.06	4.30	0.02
Female	3.46	1.27	0.01	3.47	1.28	0.01	3.44	1.28	0.01
Household Income	-1.11	0.33	0.00	-1.11	0.33	0.00	-1.11	0.33	0.00
Married/Cohabitating	-0.32	1.52	0.83	-0.38	1.51	0.80	-0.34	1.50	0.82
Less than High School Education	11.36	4.56	0.01	11.49	4.59	0.01	11.34	4.58	0.01
Currently Employed	0.49	1.40	0.73	0.50	1.40	0.72	0.43	1.40	0.76
Prior Mental Health	4.64	1.66	0.01	4.61	1.66	0.01	4.56	1.67	0.01
Direct Exposure	6.07	2.87	0.04	6.11	2.84	0.03	6.13	2.85	0.03
Media Exposure	5.63	0.64	0.00	5.60	0.63	0.00	5.59	0.63	0.00
Previous Community Trauma Exposure	1.26	0.82	0.13	1.48	0.79	0.06	1.75	0.80	0.03
Total population (block group)	0.00	0.00	0.66	0.00	0.00	0.63	0.00	0.00	0.64
Neighborhood Income (block group)	-0.00	0.00	0.28	-0.00	0.00	0.35	-0.00	0.00	0.34
Count of Organizations within a 1 mile area	-0.62	0.53	0.24	-0.69	0.82	0.40	-0.04	0.28	0.89
Previous Trauma Exposure x Organization Count	0.41	0.44	0.36	0.49	0.57	0.39	0.01	0.20	0.96
Constant	35.66	3.51	0.00	35.02	3.40	0.00	34.92	3.50	0.00
F (*df, df)*	7.01 (18, 846)***			7.19 (18, 846)***			7.16 (18, 846)***		
Model R-square	0.20			0.20			0.20		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A16. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 521)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	-0.01	0.01	0.32	-0.01	0.01	0.35	-0.01	0.01	0.34
Black	-0.42	0.71	0.56	-0.37	0.66	0.57	-0.34	0.67	0.61
Hispanic	0.07	0.60	0.91	0.08	0.59	0.89	0.06	0.60	0.92
Other	-0.23	0.47	0.62	-0.29	0.46	0.53	-0.30	0.47	0.52
Mixed Race	-0.02	0.54	0.97	-0.08	0.57	0.89	-0.02	0.56	0.97
Female	-0.10	0.20	0.63	-0.08	0.20	0.68	-0.10	0.20	0.64
Household Income	-0.17	0.06	0.01	-0.17	0.06	0.01	-0.17	0.06	0.01
Married/Cohabitating	-0.35	0.26	0.18	-0.33	0.27	0.22	-0.35	0.27	0.19
Less than High School Education	0.29	0.71	0.68	0.35	0.71	0.62	0.33	0.71	0.64
Currently Employed	-0.58	0.22	0.01	-0.55	0.22	0.01	-0.57	0.22	0.01
Prior Mental Health	1.15	0.21	0.00	1.15	0.21	0.00	1.16	0.22	0.00
Direct Exposure	-0.05	0.23	0.84	-0.06	0.23	0.79	-0.04	0.23	0.87
Media Exposure	0.18	0.10	0.06	0.17	0.10	0.08	0.17	0.10	0.08
Previous Community Trauma Exposure	0.43	0.21	0.04	0.34	0.22	0.13	0.32	0.20	0.12
Total population (block group)	0.00	0.00	0.29	0.00	0.00	0.24	0.00	0.00	0.30
Neighborhood Income (block group)	-0.00	0.00	0.81	-0.00	0.00	0.92	-0.00	0.00	0.82
Count of Organizations within a 1 mile area	0.08	0.10	0.41	0.11	0.14	0.42	0.01	0.07	0.91
Previous Trauma Exposure x Organization Count	-0.06	0.11	0.55	0.02	0.11	0.84	0.06	0.11	0.57
Constant	6.32	0.70	0.00	6.21	0.73	0.00	6.36	0.71	0.00
F (*df, df)*	3.96 (18, 520)***			4.04 (18, 520)***			3.94 (18, 520)***		
Model R-square	0.13			0.13			0.13		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A17. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Functional Impairment in New York Metropolitan Area Sample (Nobs = 681; Nclusters = 659)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Age (in years)	0.00	0.01	0.84	0.00	0.01	0.80	0.00	0.01	0.84
Black	0.25	0.47	0.59	0.28	0.45	0.54	0.26	0.46	0.58
Hispanic	0.33	0.32	0.30	0.32	0.32	0.31	0.31	0.32	0.34
Other	0.37	0.73	0.61	0.38	0.74	0.60	0.38	0.74	0.61
Mixed Race	0.73	0.77	0.35	0.74	0.78	0.34	0.72	0.78	0.35
Female	0.76	0.24	0.00	0.76	0.24	0.00	0.75	0.24	0.00
Household Income	-0.34	0.06	0.00	-0.34	0.06	0.00	-0.34	0.06	0.00
Married/Cohabitating	-0.13	0.27	0.64	-0.16	0.27	0.56	-0.14	0.27	0.61
Less than High School Education	0.46	0.64	0.47	0.48	0.63	0.45	0.48	0.63	0.45
Currently Employed	-0.44	0.25	0.08	-0.43	0.25	0.08	-0.44	0.25	0.08
Prior Mental Health	0.75	0.26	0.00	0.77	0.26	0.00	0.76	0.26	0.00
Direct Exposure	0.84	0.57	0.14	0.89	0.57	0.12	0.86	0.57	0.13
Media Exposure	0.29	0.11	0.01	0.28	0.11	0.01	0.29	0.11	0.01
Previous Community Trauma Exposure	0.18	0.16	0.28	0.20	0.16	0.21	0.18	0.16	0.26
Total population (block group)	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.05
Neighborhood Income (block group)	-0.00	0.00	0.69	-0.00	0.00	0.72	-0.00	0.00	0.74
Count of Organizations within a 1 mile area	-0.09	0.07	0.21	-0.18	0.13	0.17	-0.03	0.04	0.40
Previous Trauma Exposure x Organization Count	0.10	0.06	0.10	0.14	0.10	0.14	0.04	0.03	0.17
Constant	5.95	0.71	0.00	5.90	0.70	0.00	5.91	0.71	0.00
F (*df, df)*	6.85 (18, 658)***			6.79 (18, 658)***			6.85 (18, 658)***		
Model R-square	0.17			0.17			0.17		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A18. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in Boston Metropolitan Area Sample (Nobs = 648; Nclusters = 522)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	1.00	0.01	0.95	1.00	0.01	0.87	1.00	0.01	0.99
Black	3.31	1.89	0.04	2.98	1.73	0.06	3.02	1.67	0.05
Hispanic	0.61	0.67	0.65	0.64	0.70	0.68	0.64	0.70	0.68
Other	1.77	1.59	0.52	1.53	1.49	0.67	1.98	1.81	0.45
Mixed Race	2.09	1.70	0.37	1.90	1.50	0.42	1.97	1.65	0.42
Female	1.59	0.40	0.07	1.63	0.41	0.05	1.62	0.41	0.06
Household Income	0.89	0.06	0.08	0.89	0.06	0.11	0.88	0.06	0.08
Married/Cohabitating	0.98	0.29	0.95	0.97	0.28	0.91	1.01	0.29	0.98
Less than High School Education	0.29	0.31	0.24	0.32	0.32	0.26	0.29	0.31	0.25
Currently Employed	0.75	0.20	0.29	0.79	0.21	0.37	0.76	0.20	0.32
Prior Mental Health	1.29	0.24	0.17	1.31	0.24	0.15	1.28	0.24	0.19
Direct Exposure	1.12	0.31	0.70	1.06	0.29	0.84	1.09	0.30	0.75
Media Exposure	2.27	0.37	0.00	2.20	0.36	0.00	2.24	0.36	0.00
Previous Community Trauma Exposure	1.32	0.28	0.19	1.24	0.26	0.32	1.47	0.31	0.07
Total population (block group)	1.00	0.00	0.41	1.00	0.00	0.45	1.00	0.00	0.47
Neighborhood Income (block group)	1.00	0.00	0.98	1.00	0.00	0.97	1.00	0.00	0.97
Count of Organizations within a 1 mile area	1.01	0.11	0.91	1.06	0.11	0.59	1.10	0.08	0.19
Previous Trauma Exposure x Organization Count	0.75	0.12	0.08	0.79	0.11	0.10	0.68	0.11	0.01
Constant	0.04	0.03	0.00	0.03	0.03	0.00	0.03	0.03	0.00
Wald chi-square (*df)*	53.97 (18)***			50.39 (18)***			53.76 (18)***		
Pseudo Model R-square	0.10			0.10			0.11		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A19. Previous Community Trauma Exposure Interacting with Select Organization Counts at 1 mile to Predict Probable PTSD in New York Metropolitan Area Sample (Nobs = 692; Nclusters = 669)

	Child and Family Promoting Organizations			Health-Based Organizations			Voluntary Community Organizations		
	OR	*SE*	*p*	OR	*SE*	*p*	OR	*SE*	*p*
Age (in years)	0.99	0.01	0.15	0.99	0.01	0.12	0.99	0.01	0.11
Black	1.51	0.64	0.34	1.41	0.56	0.39	1.50	0.60	0.32
Hispanic	0.79	0.30	0.53	0.84	0.32	0.64	0.85	0.33	0.67
Other	4.01	2.65	0.04	3.79	2.34	0.03	3.91	2.55	0.04
Mixed Race	1.90	1.15	0.29	2.09	1.25	0.22	2.03	1.23	0.25
Female	1.44	0.38	0.17	1.43	0.38	0.17	1.43	0.38	0.18
Household Income	0.90	0.07	0.17	0.91	0.07	0.18	0.90	0.07	0.14
Married/Cohabitating	1.12	0.30	0.67	1.17	0.31	0.56	1.16	0.31	0.58
Less than High School Education	1.12	0.55	0.81	1.19	0.56	0.71	1.08	0.54	0.88
Currently Employed	1.09	0.30	0.76	1.12	0.31	0.68	1.09	0.30	0.75
Prior Mental Health	1.31	0.29	0.22	1.26	0.28	0.30	1.28	0.28	0.27
Direct Exposure	1.62	0.63	0.21	1.49	0.60	0.32	1.60	0.64	0.24
Media Exposure	1.86	0.26	0.00	1.89	0.26	0.00	1.87	0.26	0.00
Previous Community Trauma Exposure	1.47	0.25	0.03	1.16	0.19	0.36	1.29	0.22	0.13
Total population (block group)	1.00	0.00	0.41	1.00	0.00	0.52	1.00	0.00	0.46
Neighborhood Income (block group)	1.00	0.00	0.21	1.00	0.00	0.13	1.00	0.00	0.12
Count of Organizations within a 1 mile area	1.26	0.10	0.00	1.13	0.14	0.29	1.05	0.04	0.21
Previous Trauma Exposure x Organization Count	0.78	0.05	0.00	0.89	0.10	0.27	0.93	0.03	0.03
Constant	0.06	0.05	0.00	0.09	0.07	0.00	0.09	0.07	0.00
Wald chi-square (*df)*	65.56 (18)***			63.32 (18)***			62.78 (18)***		
Pseudo Model R-square	0.14			0.12			0.12		

****p*<.001.

Note. All standard errors (*SE*) presented are robust standard errors.

Table A20. Sample List of Dropped Words	
dance	district
preschool	taekwondo
department	fitness
marital	judo
studio	kempo
nursery	corporation
karate	ymca
club	krav
children's	knowledge beginning
superintendent	community + education
daycare	extend
childcare	continu + education

Note. The symbol "+" here means that only the combination of the two adjacent words (or partial words as was with "continu") were dropped.